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Far West Paper and Pulp Mills Ask Relief

Oregon and Washington Manufacturers Request President Hoover to Declare New and Additional Duties Upon Wood Pulp and Paper Imported From Countries That Have Discriminated Against Commerce of United States—Petition Alleges That Export Business of Paper and Pulp Industry Has Been Virtually Destroyed

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 19, 1932—E. M. Mills, president of the Washington Pulp and Paper Corporation, Port Angeles, Wash., last week presented a petition to President Hoover on behalf of the paper and pulp mills of the States of Washington and Oregon asking for some relief under Section 338 of the Revenue Act of 1930. Mr. Mills was accompanied to the White House by Carl E. Whitney, New York attorney. The petition follows:

To HERBERT HOOVER, President of the United States:

The manufacturers of pulp and paper in the States of Oregon and Washington, which States produce about one-fifth of the total national production of woodpulp and print paper, respectfully petition the President to invoke the authority vested in him by Section 338 of the Revenue Act of 1930 and declare new and additional duties upon woodpulp and paper imported into the United States from those countries that have discriminated in fact against the commerce of the United States, as defined in Section A, sub-section (2), of Section 338, Revenue Act of 1930.

Propositions

(1) The pulp and paper industry, one of the nation's largest natural resource industries, is fast approaching extinction because of discriminating duties and of unequal and unfair competition from foreign countries.

(2) The tariff policy of the United States contemplates the protection in its domestic markets of its great natural resource industries from discrimination and from unfair and unequal competition of foreign countries.

(3) The revenue laws of the United States have delegated to the President full authority to afford relief.

Importance of Industry

In normal times there were approximately 900 pulp and paper mills in the United States, employing upwards of 150,000 men, disbursing in annual wages upwards of $200,000,000.00, and producing products annually in value exceeding $1,000,000,000.00 (One Billion Dollars).

In addition, the industry is responsible for the employment of additional thousands of men and additional millions of dollars invested in allied and dependent industries.

Imports of pulp and paper in the United States rank first in value of all imports. In 1931 the value of woodpulp imports was approximately $60,900,000.00, of news print approximately $112,200,000,000 and the total value of pulp and paper imports was approximately $200,800,000.00, exceeding in value silk imports, second in rank, by approximately $9,500,000.00.

Obtaining its raw products essentially from the forests, producing wealth in extraordinary amounts, and furnishing employment to legions of men, the pulp and paper industry ranks as one of the country's essential natural resource industries.

In Oregon and Washington alone these industries represent an investment of approximately $75,000,000.00. With its immense forests and power facilities, this industry, under equal circumstances, would be the greatest agency for the development of the Northwest.

Condition of Industry

The average cost of domestic production for many months has been higher than the average price obtained. Recent price quotations range from $8.00 to $10.00 per ton lower than the actual cost of production of the largest and most efficiently operated mills in the Northwest. Similar conditions prevail in other parts of the country.

The prolonged sale of its product at a price below cost has caused the inevitable closing of mills and unemployment of men. Part-time operations, receiverships, bankruptcies, idle mills and idle men, are following in quick succession.

Of the 34 mills normally operating in Oregon and Washington, four are under receivership, two others are in default on their bonds, five others are idle. The remaining twenty-three still operate on part-time at a continuing and increasing loss. These conditions, springing from the same causes, prevail throughout the industry, nation-wide.

It is a well recognized fact that foreign imports, entering the United States under conditions most unequal and unfair to the domestic manufacturer, have demoralized the domestic industry.

At a time when general business is beginning to react to the palliative of the reconstruction measures, the pulp and paper industry is on the continuing decline. Prompt and effective relief is necessary to save the industry.

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Paper Little Affected by New Canadian Tariff

Dominion Government Puts Extensive Tariff Revisions Into Force Following Recent Imperial Economic Conference—While Few Changes Directly Affect Paper Industry, Some Alterations Will Have Indirect Effect

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., Oct. 17, 1932.—The paper making industry here is only mildly interested in the extensive tariff revisions put into force during the week by the Dominion government as a result of the agreements of the recent Imperial Economic Conference at Ottawa. Very few of the changes directly affect the industry, but many will have a more or less indirect effect, such as the wide range of chemicals which are now made free of duty when imported from the United Kingdom while bearing additional duties when imported from foreign countries, and the wide range of machinery and manufactures of iron and steel to which similar schedules now apply.

Printed books, periodicals and pamphlets imported from the United Kingdom are now made duty free. Formerly they bore a tariff of 5 per cent. The intermediate (favored nations) and general tariffs remain at 10 per cent. This item does not include blank account books, copy books, or books to be written or drawn upon.

The duty on advertising and printed matter is reduced from 10 cents to 5 cents per pound, the intermediate and general tariffs remaining at 12½ cents and 15 cents per pound respectively, provided that when imported under the general tariff rate the duty shall be not less than 35 per cent. Printed advertising matter issued by railway systems in the British Empire (not including railway systems operated in Canada) is to be admitted free, whereas formerly a duty of 10 cents per pound was levied. The duties under the intermediate and general tariffs remain the same for general advertising and printed matter.

A duty of 15 per cent is to be levied under the intermediate and general tariffs on plain basic photographic paper, while it is to be free of duty when imported from the United Kingdom. Formerly this paper was free of any duty.

Waxed stencil paper for use on duplicating machines may now be imported from the United Kingdom under a duty of 10 per cent, as against a former duty of 22½ per cent. The duties under the intermediate and general tariffs remain at 32½ per cent and 35 per cent respectively.

Claims News Print Prices Excessive

Quite a jolt has been given to the news print industry here by Gustavo Elsner, director of a firm in Buenos Aires which deals in this commodity.

Visiting Montreal during the week, he gave out an interview in which he claimed that present news print prices are "excessive," and that if Canada wants to keep its export news print market the price has got to come down.

"I have intimate knowledge of news print as produced by all sorts of countries throughout the world," he said, "and I know that the favor with which the Canadian product is looked upon generally is due to the excellence of its quality. That does not mean that your plants or manufacturers are superior to those of other nations; it means that Providence has been kind to the Dominion in its soil and woods. At the moment Canadian news print is suffering from a terrible potential over-production. Prices must be cut if they want to maintain their export markets."

He declined to commit himself as to what he considered a reasonable price might be, but implied that Scandinavian producers were ready to step in, "once the Canadian product was off the market."

Government Asked to Buy Pulpwood

A conference has taken place at the Montreal offices of the Quebec Government between Premier Taschereau and Brig.-Gen. J. B. White, vice-president of the Canadian International Paper Company, regarding the operations of the latter in the lower part of Quebec, and the situation of the colonists of the Gaspe Peninsula. According to a statement made by the Premier, the Government has been asked to purchase the pulpwood of the Gaspe colonists, to help the latter pass through the present crisis, made the more acute because of the damages incurred during the recent storm. The subject will be taken up at a conference to be held at Quebec, within a few days.

Price Bros. Can Pay Interest

From Quebec it is reported that there is indication that Price Bros. & Co., Ltd., will be able to meet the interest on their bond issue of $11,513,600, at the end of this month.

Cuts in the cost of production at mills in the Lake St. John district, are believed to be responsible for the hope that the interest may be met.

Payment of half-yearly interest on the company's bonds became due on August 1, but at that time the company announced its inability to make the payment. The company has under the trust deed ninety days of grace and this period will expire on October 31.

Big Lumber Cut for Quebec

The Hon. Honore Mercier, Minister of Lands and Forests for Quebec, states that if present indications materialize 650,000,000 feet of lumber will be cut in the forests of Quebec during the coming winter, employing approximately 20,000 men.

Quebec lumber products will materially increase their sales on European markets, particularly in England, in opinion of the Minister. He said that the stocks on hand would last for probably the next six months. Without wishing to express an opinion on the probable results of the Economic Conference, the Minister was optimistic as to the improvement of conditions generally within the near future.

Eastern Mills Invade Pacific Markets

From Vancouver it is reported that some eastern mills during the recent price conflict have endeavored to win a part of the Pacific Coast market. International has made several sales to a large newspaper chain on this coast, and in addition there has been competition from Sweden and Finland, so that the big coast mills no longer enjoy a virtual monopoly of this market, such as they had in the industry's more prosperous times.

Operators on the Pacific Coast are reported as saying that the price war in the news print industry of eastern Canada is sure to cause repercussions on the Pacific Coast, although the effect may not be realized in the near future.

Last year Powell River Company and Crown Zeller-

bach Corporation, the latter controlling Pacific Mills, Ltd., at Ocean Falls, entered into a "gentlemen's agreement" to maintain a list price of $50 a ton, which then established the Pacific coast as the lowest price zone on the continent. Now, however, coast prices are higher than the eastern levels as a result of the recent scaling down of the schedule by International and other eastern producers. Eventually, it is believed, the coast quotation will have to be brought into line with the east.

Meanwhile Pacific Mills is going ahead with an expansion program representing total expenditure of more than $300,000. The aim is chiefly at production of fiber containers for the use of salmon, sugar and dairy products of British Columbia. In the past all solid fiber containers have been brought from the east.

The present plant is already manufacturing a complete line of tissues, waxed papers and wrappers. Pacific Mills has developed a large export trade in these products in the Orient and Australasia, although its chief product is news print.

Cellophane Plant Inspected

Directors of Canadian Industries, Ltd., and a number of other persons particularly interested visited Shawinigan Falls on Thursday last to make a tour of inspection of the new cellophane plant erected in that city, and now producing a very fine quality of cellophane to supply the Canadian and Newfoundland markets.

Cellophane is manufactured at Shawinigan Falls under special arrangement with Du Pont Cellophane Company, and Walter Carpenter, chairman; L. A. Yerkes, president, and J. E. Hatt, general manager, of Du Pont Cellophane Company, Inc., New York, together with Dr. Finsparre, technical director of Du Pont Cellophane, came to Canada specially to inspect the new plant.

News Print Production for September

Production of news print in Canada during September 1932 amounted to 150,691 tons and shipments to 152,633 tons, according to the News Print Service Bureau. Production in the United States was 70,621 tons and shipments 73,234 tons, making a total United States and Canadian news print production of 221,312 tons and shipments of 225,867 tons. During September, 21,532 tons of news print were made in Newfoundland and 1,052 in Mexico, so that the total North American production for the month amounted to 243,896 tons.

The Canadian mills produced 236,590 tons less in the first nine months of 1932 than in the first nine months of 1931, which was a decrease of 14 per cent. The output in the United States was 101,886 tons or 12 per cent less than for the first nine months of 1931, in Newfoundland 11,604 tons or 5 per cent less, and in Mexico 1,993 tons less, making a North American decrease of 352,073 tons or 13 per cent.

Stocks of news print paper at Canadian mills totalled 48,062 tons at the end of September and at United States mills 33,095 tons, giving a combined total of 81,157 tons compared with 85,712 tons on August 31.

F. W. Hooper with Ross Industries

F. W. Hooper, formerly chemist of the Pacific Mills Ltd., Ocean Falls, B. C., has joined the organization of Ross Engineering of Canada with headquarters in the New Birks Building, Montreal, P. Q.

Mr. Hooper developed a completely water cooled smelter body while at Ocean Falls, B. C. With the Ross organization he will be engaged on sales and engineering service work on this unit and also on the Wagner unit.

Some Improvement in Indianapolis

INDIANAPOLIS, Ind., October 17, 1932.—Generally speaking there has been some improvement this month in business volume over September, and that month is believed by paper men to have seen the turn in the tide to a gradual betterment in business conditions insofar as paper demand is concerned. Volume is not what is desired by any means, but the trade has gone along with an indifferent demand for so many months that any sustained improvement of two months' duration is extremely encouraging. There are items which as yet have felt little of the general impetus, but they are few and most of the trade now is benefitting from more activity. If the inquiries could be cashed in, business would be very good indeed, for there is a lot of them. Also there is quite a bit of quibbling concerning prices. Most paper users seem to think that prices should be lowered even more than they are and appear to be disappointed when concessions are not made.

One of the full spots in the local demand is in the building paper field. A lot was promised for the new home loan law and there were some optimistic souls who believed it would be functioning in good shape by this time. They have learned different. The local bank just opened its offices Saturday and it likely will be six months before any good can be seen of this legislation here, if at that time. Demand for building paper took a little spurt during September, but since that time there has been little. Dealers have low stocks, but they will be held as low as possible until after inventory at least.

Some direct by mail advertising is being done and some orders for better grades of paper have resulted from this business. Increased postal rates have curtailed these expenditures, however. The news print business is a trifle stronger. Papers still are small as compared with a few years ago, but the fall season has done much for the business. Kraft paper demand is little changed from a week ago. Prices are fairly steady.

Container demand continues a slow expansion. Most of the Indiana factories are working at least 50 per cent and some more and new sources are being developed.

A Recording Consistency Regulator

A new consistency regulator is just announced, in which the features are simplicity, and a record showing the actual consistency delivered from the regulator continuously. Simple design results in low cost. The record, made on a twenty-four-hour circular chart, represents the stock itself, not the position of the water valve. Such a record is available for the first time.

Even in the best regulated stock systems, there are times when the stock, as it comes up to the consistency regulator, is already too thin. A consistency regulator can add water, but cannot take water out. Hence, if the stock is already on the thin side, the regulator shuts off the water, and the thin stock passes on into the subsequent processes. When trouble results, it is often hard to trace. But in the new regulator there is the record to show when the thin stock runs, how long a time it runs on the thin side, and how much too thin it is. Going back to correct the difficulty at its source therefore becomes at once a plain and easy thing to do.

The new regulator is adaptable to any point in a stock slush system, either in the paper mill or in the pulp mill, or in connection with a metering and mixing system. The entire regulator is supported on the water pipe line.

The new unit, known as the Recording Consistency Regulator, is announced by Arthur B. Green, management engineer, 249 Harris Avenue, Needham, Mass.

Philadelphia Paper Trade Outlook Brighter

Actual Gain In Business Transacted Experienced In Both Fine and Coarse Paper Markets—Election Activities Partly Responsible for Increased Consumption of Printing Papers—Volume of Inquiries for Future Needs Expanding

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 15, 1932—Activity in the Philadelphia paper trade during the week assumed a snap comparable to that of this early Fall weather. Unfortunately, however, activity was more directed to preparation for what is to come than in the taking care of that which actually is. In other words, the lethargy, particularly in the coarse and wrapping paper division which so long has existed and which brought these branches of the trade to the point of what members, themselves, say was near demoralization, is passing, actually has passed, and in that fact—the renewed enthusiasm—there lies a significant sidelight on trade conditions.

In both the fine paper and the coarse paper division, however, the week showed an actual gain in business done, though but a slight one. The business week was, of course, interrupted considerably by the observation of the Jewish holidays and of Columbus Day; nonetheless a gain was discernable, and one distinctly, even though slightly in advance of a purely seasonal betterment. Election activities are, of course, in part responsible for the increased consumption of fine printing papers.

Consumption of wrapping lines from the textile and leather industries was conducive to this increase but was not confined to them. To illustrate: The Reyburn Manufacturing Company, large consumers of paper products for conversion into tags and other articles, is reported to be working over-time to supply the demand which comes from large establishments, particularly the great department stores.

There is also a stiffening of prices in twines, both jute and sisal now being quoted at approximately 10 per cent higher than they were during the summer months. Some improvement in demand is reported. The advance in cotton twine, however, has been very decided, today's prices being almost 40 per cent of those during the dog days.

In a general way, the paper trade reports a steady continuance of better feeling all around, with a decided increase in numbers of inquiries and some in ordering. Throughout there are spots where buying is almost active but this status is not by any means general.

Paper and Bag Institute Activities

The greatest activity in trade circles during the week deals with the wrapping and bag divisions. The recently incorporated Paper and Bag Institute of Philadelphia held a most satisfactory good fellowship and sales promotion meeting in the Elks Club House. There were present representatives of ninety per cent of the full membership in the Institute.

Committee reports showed that the Credit Bureau was now functioning in a most satisfactory way and with good results to the members. Decision was also reached, in order to keep members both advised and alert, to publish a weekly circular letter which will deal with up-to-minute developments.

Such good feeling was engendered at this and preceding meetings that decision has virtually crystalized in favor of holding a banquet early in the coming year, at which time or before there will be the formal organization with the election of a complete set of officers. Nathan D. Isen of The Enterprise Paper Company is among the very active workers in the new organization.

Through the activities of the Planning Committee, which is endeavoring to effect an organization in the wrapping paper division, another meeting was held during the week in the offices of the Typothetae of Philadelphia. There were present ten of the twenty prospective members with four others reporting interest but inability to attend. Arthur Chamberlain, of the National Association, was present. He made an informal but most interesting report of the highlight of the recent National Convention, dealing particularly with the work that was being done in the matter of cost finding, and, of course, pointing out the value of cooperation.

T. H. B. Smythe, president of J. L. N. Smith Company, presided at the meeting, and though as large an attendance as had been hoped for was not able to be present, there was every evidence of interest and of eventual success. Some of those attending expressed pleasure at the improvement in conditions, calling attention to the fact that prices showed some tendency towards stiffening, and that the old and evil condition of parity in price between cheap wrapping paper and bags was no longer existent in view of the slight advance in bag prices. For months now, both of these prices have been in the two and three cent bracket (even closer to the lower limit than to the higher) but they are now, so far as bags are concerned, moving upward.

Paper Trade Association Meets

Again and perhaps the most enthusiastic evidence of the new confidence in trade circles was furnished at the meeting held during the week at Dufors, of the Paper Trade Association of Philadelphia, and which launched what promises to be Fall and Winter activity of import. The attendance was most representative. The outstanding feature of the meeting was the report given by Mr. Wilcox of the high-lights of the Chicago National Convention. Mr. Wilcox brought from the city by the Lakes the spirit of enthusiasm and confidence prevailing there and it was contagious among all those present.

News of the Trade

Robert I. Batchelor, veteran of perhaps two-score of years in the building paper trade and its conduct in the old Garrett location, 20 South Marshall Street, believes, however, that there is an attractive opening for a younger man to become manager with the firm,—possibly associated with him in its operation. Sometime ago, it will be recalled, Mr. Batchelor purchased the business of the old C. S. Garrett & Son Corporation from the Receiver and is now owner of the C. S. Garrett & Son Company. The business is largely confined to dry sheathing and to the water-proofing in its own plant of a variety of insulating papers.

Returning from Chicago, enthusiastic over the success of the National Convention, and of the inspiring addresses he listened to there, William S. Wilcox, of the Wilcox-Walter-Furlong Paper Company, was again at his desk, glad that conditions here reflected the better tone so evident at the national gathering.

Canadian News Print Situation Little Changed

Although Beatty Committee Continues to Meet, Merger Negotiations Are Reported to be Practically At Standstill—Lake St. John Power & Paper Co. Plans to Form Protective Committee—Future Sales Are Well Assured

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 17, 1932.—Confirmation from official sources in Toronto was obtained this week concerning the statement in the report of receivers for the Minnesota and Ontario Paper Company, that plans looking to a merger of Canadian news print units have come to a virtual halt. The M. & O. receivers are quoted as having said: "As far as your receivers are advised, this movement is practically at a standstill." While the Beatty Committee, comprised of representatives of banking interests who were asked to sit in on the news print situation by producers, is still meeting, it is understood that the industry has slipped back into a rivalry for markets out of which can survive only those units which are most strong.

It is suggested that outside interests, occupying a favorable position as to low-cost production, have succeeded in check-mating almost every move which attempted to coordinate warring elements within the industry. As a result, interests closely identified with the industry now assert that other manufacturers must get together and arrive at some sort of an understanding with these low-cost producers.

In the meantime it is learned that steps are afoot by bond holders of Lake St. John Power and Paper Company, interest on whose bond and debenture issues has been in default since August 1, are planning to form a protective committee. An informal meeting was held in Toronto last week for the purpose of selecting proxy holders. A committee was named to select those to whom security holders will be invited to forward proxies. The company has outstanding $4,711,000.00 in first mortgage 6½ per cent bonds, due in 1947, and $2,822,000.00, 6½ per cent fifteen-year debentures, due in 1942.

It is understood that when the default was first entered by the company, a United States chain-newspaper publisher owed the company considerable sums. In the meantime a very substantial cash payment has been made and the balance covered by notes which the banks have agreed to discount. It is further understood that the company has secured an outlet for its full production during the next five and one-half years, through a contract with this publisher, the price to be at the market during the period.

In the case of Abitibi Power and Paper Company, no recent statement has been made by the protective committee, but it is stated in circles close to the industry that only about thirty per cent of outstanding bonds have been deposited with the committee for the purpose of effecting a reorganization.

Announcement was made this week that A. D. Cobban, of Wood, Gundy & Co., has been added to the Minnesota and Ontario Paper Company bond holders' committee, to fill the vacancy caused by the resignation of T. R. Harrison. The committee reports that consolidated income and profit and loss account for the six months ended June 30, shows a slight profit before deducting depreciation and interest accrued on the company's defaulted obligations.

Receivers' certificates originally outstanding in the principal amount of $635,000.00 have been reduced to $300,000.00. The receiver states that substantial progress has been made in examinations relating to title in various properties, and the correction of any defects therein This examination has not been concluded, but sufficient progress has been made to disclose the existence of no serious remaining problems of this character.

Sorting and Inspection of Paper Discussed

That the sorting and inspection of paper is a human operation, and with all such operations the human equation enters into it with it's consequent variations, was asserted by Neil B. Powter, of the Howard Smith Paper Mills, in an address before the Toronto Typothetae at its opening fall meeting at the Royal York Hotel, Toronto, on October 12, at which many representatives of paper houses and the printing industry were present. Mr. Powter went on to say that today when orders must be rushed through for shipment, when quantities are low and the volume of small orders high, the inspection departments are taxed to the limit and errors creep in that occasionally cause the printer grief. Each addition to the inspection staff; each lot of paper rejected, causes costs to rise, and as no one has yet made a perfect sheet of paper, it is extremely difficult to determine what to ship and what not to ship. Mr. Powter said that the mills' ideals in this respect were to ship every possible sheet of paper the printer could use and thus keep costs down, and to hold back every sheet of paper the printer cannot use. No mill, he declared, ever knowingly sent out paper which they felt the printer could not use. But there was sometimes quite a difference of opinion on this subject. Mr. Powter declared that it was high time the printers as a whole analyzed their requirements with a view to eliminating unnecessary grades, sizes and weights. Standardization and concentration of these items would no doubt be followed by a decrease in paper costs.

Work to Proceed at Abitibi Canyon

The Ontario Cabinet this week passed an Order-in-Council for the transfer of the Abitibi Canyon power development plant from the Ontario Power Service Corporation to the Province for $18,000,000 of Ontario Hydro Bonds, given in exchange for $20,000,000 of the company's bonds. This means that the development plant, with an ultimate capacity of 275,000 hp. is now in possession of the Province, although Premier Henry in making the announcement, stated that considerable legal work has yet to be done in connection with the transaction. Work will now proceed on two of the five generators to be built in the Canyon, but the full quota of men who were engaged prior to the shut-down will not be employed.

Walter Cloud Leaves United Paperboard

Owing to the closing down of the Lockport, N. Y., mill of the United Paperboard Company, Walter Cloud has severed his connection with this company.

Mr. Cloud was formerly with the Coated Board Division of the Container Corporation of America in the capacity of superintendent. He is undecided as to just what he will do, but for the present will remain in Lockport.

TAPPI Lake States Section Meets

The Lake States Section of the Technical Association of the Pulp and Paper Industry resumed its monthly meetings on Tuesday evening, October 11, at the Conway Hotel, Appleton, Wis. The meeting was very well attended, about 175 pulp and paper men being present. Chairman Russel LeRoux presided.

Among the guests was Allen Abrams, president of the Technical Association of the Pulp and Paper Industry. Immediately following the dinner Mr. Abrams gave a short address. He pointed out that the papers presented at the Fall Meeting of TAPPI were excellent and that a number of papers were to be presented at the regular meeting in New York which would be of great interest to all members of TAPPI. He complimented the local section on its good spirit and attendance.

Joseph H. Slater, manager of the Escanaba Paper Company and TAPPI Executive Committeeman was called upon to say a few words. Mr. Slater proceeded to stress the importance of the technical man, especially in this new economic era in which we are making paper and giving it away. Continuing, he said that he felt that the time had passed when paper can be made by rule of thumb methods.

Forced Sulphite Circulation

Both of the papers presented were under the general title: "The Babcock and Wilcox and Kimberly-Clark Process of Forced Circulation and Indirect Heating in Sulphite Pulping." The first paper, entitled "Discussion of Equipment Employed" was presented by A. R. McAllister of the Babcock and Wilcox Company, Barberton, Ohio. The advent of the chrome-nickel alloys greatly facilitated the fabrication of larger acid resisting units. The original pieces used were castings and the majority of the earlier castings were failures but research in the steel industry has now produced a satisfactory product. In addition to alloy composition it is found that the manner in which the casting is heat treated is of vital importance. It is found that the fabrication of seamless tubes of resistant steel required close metallurgical control. Failure both in the early days and even in many cases today occurs as a result of carbon precipitation. The precipitation usually occurs in high carbon castings. High carbon content in castings is common since the high content aids in forming more prefect castings. It is found that the addition of small amounts of molybdenum materially aids in keeping the carbon in solid solution. Much time was spent in accurately and scientifically designing the equipment for the sulphite pulping process. The equipment was illustrated by slides supplemented by descriptions by Mr. McAllister.

The second paper, presented by Lloyd Lang of the Kimberly-Clark Corporation, Kimberly, Wisconsin, was entitled "The Application of the Process in the Sulphite Pulping Operation." The process had its origin in a study of cooking conditions, the objective being a standardization of the cooking methods. A study of the temperature variations within the digester was made by placing thermocouples at various points. The results of this study revealed that very large temperature variations existed, the higher values being far above the temperature that any good cook would employ. Variations existed not only at different heights but also in the same horizontal plane. An analysis of the heat variations indicated that the geometric shape of the chips was such that, in a conical pile, a shingling effect resulted. As a result the chips act as a deflector for the currents within the digester and tend to send the current up through the center of the mass. Prevention of the conical piling resulted in a perfect distribution of heat. The device for distributing the chips thus became a part of the new system. The system consists essentially of a strainer located at a height of about three-fourths of the digester. This strainer consists of perforated piping with stove-pipe connections to permit expansion of the alloy steel. From the strainer a pipe leads downward, also made of stovepipe connections, almost to the lower cone of the digester then outward through the shell to a pump, from the pump through the heat interchanger, and then back to the digester, entering at the bottom. The savings claimed by the new process were of particular interest. Briefly, these savings are as follows: An increase of 5 to 8 per cent in yield. An increase of 24 to 28 per cent in digester capacity. A 20 per cent saving in sulphur. A return of a large amount of condensate from the heat interchangers to the boiler house. A 33 to 40 per cent reduction of total steam costs. The various parts of the equipment, the controls and the operation were described in detail. The description was supplemented with lantern slides.

On Wednesday members of the Section were guests of the Kimberly-Clark Corporation on an inspection tour of the Kimberly, Wis., mill of that company.

Paper Men Confer at Washington

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 19, 1932—A conference was held at the Government Printing Office last week between newspaper publishers, paper manufacturers, ink manufacturers and government officials in connection with both newsprint paper and ink used for printing newspapers. It was arranged by W. Wines, of the Mechanical Department of the American Newspaper Publishers Association.

Among the paper manufacturers present were included: R. S. Kellogg, Newsprint Service Bureau; L. O. Anderson, Ontario Paper Company; Mr. Freeman and George M. McKee, Consolidated Paper Company; George D. Bearce, International Paper Company, Dalhousie, N. B.; J. H. Patterson, Abitibi Power and Paper Company; John Bates, Price Brothers; Bruce Zumwalt, Powell River Paper Company; Arthur Schroeder, Pejepscot Paper Company; Arthur Allen, International Paper Company, and others.

Following are the paper questions which were discussed:

1. Practicability of reducing percentage of sulphite to improve printing quality.
   (a) What, from the paper makers' standpoint, is the lowest permissible percentage?
   (b) Will less sulphite dangerously decrease strength of paper?
2. Desirability and effect of filler.
3. Desirability and effect of size.
4. Importance of surface finish.
   (a) Is surface governed by calendering or by the furnish or both?
   (b) What are the elements in manufacturing which account for a hard or a soft sheet?
   (c) Practical value of the Bekk surface tester.
   (d) Possibility of establishing a standard for surface.
5. Factors which affect absorption of ink and strike through.
6. How can opacity be increased?
   (a) What is the best method of measuring opacity?
   (b) Does formation affect opacity?

Obituary

William Post Holliday

DETROIT, Mich., October 10, 1932.—William Post Holliday, banker and manufacturer, died Saturday afternoon in the Henry Ford Hospital. He had been in good health until a few days ago when he suddenly became ill and was taken to the hospital. He was 80 years old.

Chairman of the board of the Detroit Sulphite Pulp and Paper Company, and a director of the First National Bank, Mr. Holliday has been interested in numerous enterprises in Detroit for sixty years.

He was born at Springfield, Pa., January 9, 1852, of an early American family which had come to Pennsylvania in 1740 from Scotland. He received his early education at the Springfield (Pa.) Academy and at the Ann Arbor (Mich.) High School. He was a member of the first freshman class of Cornell University in 1868 and entered business in Detroit in 1872 with D. M. Richardson, a match manufacturer.

After six years he founded the Holliday Box Company for the manufacture of paper boxes and operated it for more than forty years. He early became interested in banking and held numerous positions in the banking world. From 1904 until he became chairman of the board in 1922 he was president of the Central Savings Bank. He also had been president of the United States Board and Paper Company of Carthage, Ind., and president of the National and Western Association of Paper Box Manufacturers.

Mr. Holliday was widely known in club circles. He formerly headed the Bankers Club, the Cornell University Association of Michigan, the Michigan Society Sons of the American Revolution and the Michigan Society of Colonial Wars. He was the first treasurer of the Detroit Board of Commerce and was a member of the Detroit Club, Detroit Athletic Club, University Club, Prismatic Club and a past president of the Old Club, St. Clair Flats.

He is survived by a widow, the former Marian Barker, whom he married 52 years ago in New York, and a daughter, Mrs. Charles Sumner Pike.

Archibald Fraser

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 17, 1932.—Archibald Fraser, of Edmunston, N. B., president of Fraser Companies, Ltd., and a director of the Royal Bank of Canada, dropped dead near his hunting lodge at Nictau, on the Tobigue River, on Monday last.

Mr. Fraser was born in Aberdeen, Scotland, on April 22, 1869, son of Donald and Ann (Reith) Fraser. His family came to New Brunswick, as Kincardine Scotch colonists, his father opening, a short time later, a lumber mill at River de Chute, Carleton County, where the young Fraser began his apprenticeship at the age of 14, to learn the business from the ground up. He entered into partnership at the age of 21 with his father and his brother, Donald, Jr., under the firm name of Donald Fraser & Sons. Years later Archibald Fraser organized the present Fraser Companies, Ltd., one of the largest and most far-flung lumber and pulp and paper firms on the North American continent. The manufacture of pulp was commenced by the Fraser Companies, Ltd., in 1915.

Mr. Fraser's rise to his present eminent position was meteoric. He started on the bottom rung of the ladder and by sheer zeal and ability forced himself to the top.

Mr. Fraser is survived by his wife, formerly Miss Evelyn Whyte, of Edinburgh, Scotland. They were married on June 25, 1930, in London, England. His first wife, Miss Agnes Dunbar, Woodstock, N. B., whom he married in 1902, died in 1911. Two sons by the latter marriage also survive, Donald and Archibald, both of Edmundston, and one daughter, Nan, whose husband, Hugh Kennedy, of Montreal, died suddenly in New York a few months ago, while on a business trip to that city. Mrs. Kennedy has been in Edmundston at her father's home for the last several weeks. One brother, Donald Fraser, lives at Plaster Rock, N. B.

Edward B. Weston

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, October 17, 1932.—Private funeral services were conducted last Thursday afternoon for Edward B. Weston, 68 years old, president of the Weston Paper and Manufacturing Company, and the head of several paper concerns in Ohio, Indiana and Illinois, from the chapel at Woodland Cemetery, Dayton. Interment was made in Woodland. Members of paper concerns and close friends served as pall-bearers. The rites were extremely simple. Mr. Weston's death took place earlier in the week at Chicago and was caused by an attack of double pneumonia.

Mr. Weston's death removes one of Dayton's leading business men and an especially widely-known member of the paper trade. He began his association with the trade as a paper salesman in his youth, having been with the R. A. Rogers Paper Company in Dayton. Later he joined the sales force of the Aull Brothers Paper Company, and finally launched into a business career for himself which proved to be eminently successful.

Besides being president of the Weston Paper and Manufacturing company he was the owner of paper mills at Terre Haute, Ind., Rockford, and the Auglaize mill in Auglaize County, Ohio. Mr. Weston managed all of these concerns successfully. Edward Wallace Weston, the manufacturer's only son, was in active charge at Terre Haute.

He was a member of many clubs in Ohio, Indiana and Illinois, including the Clear Lake Outing Club of Topeka; the South Shore Country Club, Chicago; the Taramac Island Fishing and Shooting Club of Canada; the Jonathan club of Los Angeles; the Columbia Club of Indianapolis; the Northmoor Country Club, Dayton, and others.

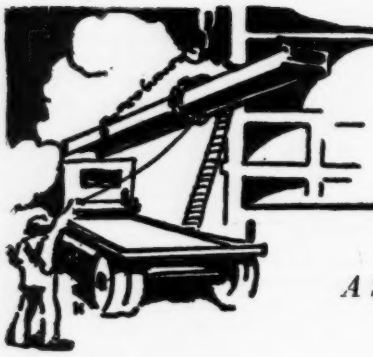
He married Miss Blanche Phillips, member of a prominent Dayton family, who died three years ago at Hamilton, Bermuda. Besides his son he is survived by four daughters, two of whom reside in London, England, Mrs. Robyn, Campbell and Mrs. P. W. Wooten; Mrs. George W. Asslerbach, of Ocean City, N. J., and Miss Irma Delight Weston, of New York City.

George C. Slingerland

[FROM OUR REGULAR CORRESPONDENT]

MECHANICSVILLE, N. Y., October 15, 1932.—George O. Slingerland, prominently identified with the paper box manufacturing industry, died this week at his home here following a brief illness. For many years he was general superintendent of the box manufacturing business conducted by Simpson & Morehead at Troy and was later promoted to supervise the establishment of a branch started by the company at this place. Some time ago the business here was acquired by the deceased and he has conducted it since.

He was also prominent in politics and held the position as treasurer of Saratoga county after having served several terms as a supervisor. He was a member of many fraternal organizations. His wife and two sisters are the principal survivors.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Childs, Md.—The Elk Paper Manufacturing Company, recently organized, has taken over the former Marley Paper Mill at Childs, near Elkton, Md., operated for about a year past by the Maryland Paper Board Company, and will use for plant for the manufacture of a new line of paper goods, including high grade wrapping stocks and similar papers. Improvements have been made at the mill, which will be placed on a 24-hour production schedule of three eight-hour shifts per day, giving employment to large working quota. The new company is said to have secured sufficient orders to continue this manufacturing schedule for several months. O. R. Emigh is general manager of the new company, and Carroll T. Gardner, plant manager; the latter was formerly general manager for the Maryland Paper Board Company.

Fredericksburg, Va.—The Sylvania Industrial Corporation, 122 East 42nd street, New York, N. Y., manufacturer of transparent cellulose wrapping materials, has plans nearing completion for the construction of new additions to mill at Fredericksburg, forming a third operating unit of three one-story structures, estimated to cost over $150,000, with machinery. It is expected to begin work on the project during the next thirty days. Large increase in output will be carried out. Dr. Frank Reichel is general manager, in charge.

Vincennes, Ind.—The Vincennes Folding Paper Box Company, recently organized with a capital of $20,000, plans operation of a local plant for the manufacture of paper boxes and containers. The new company is headed by H. B. Brenbarger and Ralph Blackburn, both of Vincennes.

Kane, Pa.—The United States Corrugated Fibre Box Company, Kane, with headquarters at 1409 Roosevelt avenue, Indianapolis, Ind., has approved plans for a new plant unit at Kane, one-story, 40 x 160 feet, reported to cost about $35,000, with equipment. General building contract has been awarded to the Don Ranallo Company, 4806 Liberty avenue, Pittsburgh, Pa., and superstructure will be placed under way at once.

Plattsburg, N. Y.—The Berst-Forster-Dixfield Company, Grand Central Terminal, New York, N. Y., manufacturer of paper products, etc., has superstructure under way for new additions to mill at Plattsburgh, previously referred to in these columns, consisting of two main three-story buildings, 153 x 210 feet, 40 x 300 feet, and new one-story unit for filtration plant; improvements are also being made in existing mill. It is proposed to have the structures ready for equipment installation in near future. Program is estimated to cost close to $200,000, with machinery. The James Leck Company, 211 South 11th street, Minneapolis, Minn., is general contractor. The same contractor has superstructure in progress on an addition to mill of the Berst-Forster-Dixfield Company at Cloquet, Minn., comprising three two-story and basement units, 102 x 226 feet, 102 x 145 feet, and 81 x 102 feet; the walls are about one-half completed and it is proposed to push work to early completion. The expansion will cost about $250,000, with equipment. Homan F. Hallock, Oswego, N. Y., is architect and engineer for both projects.

Kalamazoo, Mich.—The Sutherland Paper Company is said to have plans under way for remodeling and improving its local mill on Pitcher street. Estimated cost of work has not been announced.

Brooklyn, N. Y.—The Superior Paper Box Company, recently organized by Abraham Greenberg, 1311 Union street, Brooklyn, and associates, plans operation of a local plant for the manufacture of a line of folding paper boxes and containers.

Newton Falls, N. Y.—The Newton Falls Paper Company is said to have plans under way for an expansion and improvement program at its mill, estimated to cost close to $100,000, with machinery. It is understood that work will include the construction of one or more new buildings.

Clifton, N. J.—The Clifton Paper Board Company, Inc., has been organized by Domenick, Thomas and Anthony Desiderio, heads of Frank Desiderio Sons, Inc., 262 Jefferson street, Newark, N. J., paper dealers, with capital of 2500 shares of stock no par value. The new company will take over the plant and property of the Clifton Paper Mills, Inc., 1 Ackerman avenue, Clifton, recently acquired at a receiver's sale by the organizers of the new company at a price of $285,000. The new company will specialize in the manufacture of paper board products, including boxes and containers, and plans extensive operations at the mill.

Chicago, Ill.—The Statter Wall Paper Company, 400 West Madison street, has filed notice of change in corporate name of company to the Statter Wall Paper Mills.

St. Andrews East, Que.—The Canada Paper Company, Ltd., is said to have plans under consideration for a new plant unit for the manufacture of special tissue papers, absorbent waddings and kindred paper stocks. It is reported to cost over $50,000, with equipment.

Bogalusa, La.—The Bogalusa Paper Company, Bogalusa, has plans nearing completion for the construction of the first two units in its expansion and improvement program, and will take bids for erection at an early date, expecting to begin foundations early in November. One of the structures will be used for power plant service, and will include installation of considerable new equipment, for which certain contracts have been let; the other structure will be equipped as a recovery unit. Both will be of steel frame construction. Other buildings will be

constructed later. The entire program is estimated to cost $1,250,000. United Engineers & Constructors, Inc., 112 North Broad street, Philadelphia, Pa., is engineer. M. E. Cody is general plant manager.

Elizabethton, Tenn.—The American Glanzstoff Corporation, manufacturer of cellulose rayon products, has increased production schedule at local mill, and is now running close to a capacity basis, with normal working quota in all departments.

New Companies

Brooklyn, N. Y.—The Industrial Paper Supply Company, Inc., has been incorporated with a nominal capital of $5,000, to deal in paper products of various kinds. The incorporators are I. D. Hamilton and Charles W. Blanford, 452 Fifty-sixth, street, Brooklyn.

New York, N. Y.—The James P. Heffernan Paper Company, 11 Broadway, has arranged for change in company capital stock from $25,000 to $6,250.

Chicago, Ill.—The Transitwrap Corporation, 416 West Erie street, has been organized with capital of 270 shares of stock, no par value, to manufacture and deal in transparent cellulose paper products. The incorporators Edward E. Badgley and John S. Bomberg.

New York, N. Y.—The Slip-Clip Corporation has been incorporated with a capital of 100 shares of stock, no par value, to manufacture and deal in paper boxes and bags. The principal incorporators are Richard Ely, Short Hills, N. J., and Andrew C. Knoeller, 8 Clinton avenue. Jersey City N. J.

Chicago, Ill.—The Eureka Paper Box Corporation, 811 Rees street, manufacturer of paper boxes and containers, has arranged for change in company capital stock from $75,000 to $15,000.

Philadelphia, Pa.—The Progressive Paper Company has been incorporated with a nominal capital of $5,000 to deal in paper products of various kinds. The incorporators include Morton Seidenfield and Mary B. Clair, 2126 North Fifty-seventh street. Last noted is treasurer and company representative.

Long Island City, N. Y.—The Manhattan Wall Paper Company has been incorporated with capital of $15,000, to deal in wall paper stocks. Company is represented by Earl I. Gallant, 1440 Broadway, New York, attorney.

Philadelphia, Pa.—Economy Box & Machine Company has been incorporated under Delaware laws with capital of $250,000, to manufacture paper box machinery and kindred equipment. The incorporators are J. D., J. K. and B. B. Tennant, all of Philadelphia. H. E. Speyer, Wilmington, Del., attorney, is company representative.

Floods Damage Paper Mill Property

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., October 15, 1932—Heavy rainfalls this week caused considerable damage to property in this section and a number of mills were forced to operate under difficulty. The flashboards on the dam at the Fort Edward plant of the International Paper Company were swept away with the swollen waters and operations were impeded to some extent. A boom at the dam owned by Finch, Pruyn & Co. also broke from the rising river and it was necessary to repair the damage immediately in order to keep large quantities of pulpwood from floating away. A large amount of pulpwood stored near the mill of the Dexter Sulphite Pulp and Paper Company was also carried away but later recovered. At the Sherman Island plant of the International Paper Company it was reported that the flow of the river had recorded the largest increase in several years.

New York Trade Jottings

R. S. Kellogg, secretary of the News Print Service Bureau, New York, and Mrs. Kellogg, motored to Washington, D. C., last week.

* * *

George D. Bearce, manager of the Dalhousie mill of the New Brunswick International Paper Company, and his wife, are in town this week.

* * *

Morris Paper Company, Brooklyn, N. Y., has been chartered under the laws of the State of New York, with a capital stock of 100 common shares.

* * *

Heller & Merz Corporation, dyestuff manufacturers, announce the removal of their New York offices from 286 Spring street to 90 West street.

* * *

George M. McKee, assistant to the president of the Consolidated Paper Corporation, Montreal, Que., and his wife, were New York visitors last week.

* * *

The Robert Gair Company, Inc., manufacturers of paper board products, has leased for expansion of its executive and sales offices 12,000 square feet in the Commerce Building, 155 East 44th street, New York.

* * *

The Japan Paper Company, New York, featured the actual making of paper by hand at the Direct Mail Exposition held at the Hotel Pennsylvania, recently. Small equipment brought over from England was used in the demonstration.

* * *

The Eastern Division of the Salesmen's Association of the Paper Industry held its regular weekly luncheon and meeting at the Hotel Roosevelt, New York, on Monday last. Those present took part in an exceptionally interesting round table discussion of prevailing business conditions.

Tennessee Paper Mills Active

CHATTANOOGA, Tenn., October 17, 1932—The first concrete evidences of improvement in business were felt by the Tennessee Paper Mills, Inc., at the start of last month, and the mills are running full time with enough orders to last until December 1 at capacity operation, according to John Stagmaier, president.

"The product of the Tennessee Paper mills is of the kind that cannot be stocked, but orders are in the hands of plants using the product when they go forward to the mill," Mr. Stagmaier said. "This is evidence of a genuine increase in the business of the concerns using our products, which consist of box factory supplies. It is among the first concrete evidences of a return of prosperity recorded for some time."

The mills are located in North Chattanooga and during September shipped thirty-three carloads of finished products and received eighty-seven cars of incoming raw material, Mr. Stagmaier said.

Vincennes Box Co. Incorporates

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 17, 1932.—Articles of incorporation have been filed with the secretary of state here by the Vincennes Folding Paper Box Company, Inc., of Vincennes, Ind., formed to manufacture paper boxes. The corporation has an initial capital stock of 400 shares having a declared par value of $50 each.

PAPER TRADE JOURNAL
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Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm,
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PAPER BOARD PRODUCTS ACTIVE

The paper board industry is being recognized as a barometer of general business for all manufacture other than the heavy industries. Its output is confined to the fabricators of box board containers and cartons, who produce annually over two and one-half billion boxes.

The wide range of users includes manufacturers and distributors of food products, clothing, automobile accessories, tobacco, drugs, glassware, electric appliances, radios, etc., and a cross-section of their requirements are represented in the demand upon the paper board mills and box makers.

Shipping containers and cartons are a necessity for the protection of outgoing shipments and are ordered in conformity with production schedules. The total sum of these orders therefore, indicates in advance the volume of new goods being prepared for market.

Statistics of the Paperboard Industries Association show for the first six months of 1932 the usual seasonal trends, with a volume below 1931 of 15 per cent. With the opening of August a marked change took place. Buyers' inquiries increased, contracts for future delivery were sought —disclosing a different attitude—orders were placed, prices began to stiffen. During September further gains were made until container operations advanced beyond the seasonal expectancy to the point of almost full time plant operation. This is the best showing that has obtained in over ten months, and has brought an increase in plant payrolls and the number employed.

Past experience shows that a gain in activity originating in the Eastern market travels towards the West and is indicative of a sustained movement. Similar upturns in the West, however, are less likely to hold. During the past two weeks the Eastern demand has so improved that now an average of four and three-quarters days is necessary to complete unfilled orders as compared with the former three and one-quarter days. During this same period, plant activity has been stepped up by more than twenty-five per cent. An advance in price has been made for the first time in nearly three years, and hope is revived that the industry will again be placed on a profitable basis. The Western situation has likewise improved, but the full force of the Eastern upturn has not as yet been felt.

The source from which the demand comes is so widely spread that it cannot fail to represent a real quickening of business activity in thousands of manufacturing plants throughout the territory served and since it is exceeding the usual seasonal upturn it proves that there is truth in the often repeated statement that there is a scarcity of stocks on hand which must be quickly replenished.

FOREIGN PAPER TRADE

August exports of paper and paper products from the United States were valued at $1,168,649, a slight decrease over the preceding month, but 28 per cent below those of the same month last year according to the Paper Division of the Department of Commerce. When placed beside the figures of the preceding month the following increases are indicated: Papeteries, 84 per cent; box board, 68 per cent; fiber insulating lath or board, 60 per cent; tissue and crepe paper, 70 per cent; greaseproof and waterproof papers, 63 per cent; filing folders, index cards and other office forms, 47 per cent; wallboard of paper or pulp, 30 per cent; boxes and cartons, 25 per cent; other paper board, 22 per cent, cover paper and other writing paper, each approximately 13 per cent; and paper towels and napkins, 10 per cent, while very slight increases occurred in vulcanized fiber sheets, strips, rods and tubes and blotting paper and only very slight decreases were noted in exports of cash register and adding machine paper. The following heavy decreases are noted over July exports: Sheathing and building paper, 47 per cent; toilet paper, 54 per cent; book paper, not coated, wrapping paper, and surface coated papers, each approximately 35 per cent; paper hangings, 60 per cent; envelopes, 25 per cent. Paper bags, news print and overissue and old newspapers suffered less, the decreases being from 10 to 15 per cent in these items.

Contrasted with a year ago, only surface coated papers and tissues and crepe papers showed increases, the former being 4 per cent higher and the latter 57 per cent. The heaviest decreases were as follows: Wall paper, 90 per cent; wall board of paper or pulp, 78 per cent; sheathing and building paper, 67 per cent; cash register and adding machine paper, and envelopes, each 50 per cent; paper bags, papeteries, other paper board, each approximately 43 per cent; while items in which the decreases ranged from 30 to 40 per cent included vulcanized fiber, sheets, strips, rods and tubes, boxes and cartons, other writing paper, blotting paper, cover paper, paper towels and napkins, box board, other paper board, and fiber insulating lath or board. Only slight decreases occurred in surface coated papers, and greaseproof and waterproof papers.

Exports of paper base stocks for August amounted to $118,957, representing decreases of 40 per cent and 66 per cent, respectively, over the preceding month and the corresponding month last year. Exports of pulpwoods were valued at $5,045, an increase of 6 per cent over July but a decrease of 75 per cent from those of a year ago. When compared with the preceding month decreases are noted as follows: Sulphite wood pulp, 40 per cent; soda wood pulp, 85 per cent; other wood pulp, 76 per cent; and rags and other paper stock, 50 per cent. When compared with August, 1931, soda wood pulp fared a little better being only 35 per cent lower, but in the case of sulphite wood pulp, rags and other paper stock, there was a decrease of 65 per cent in each case and other wood pulp showed a loss of 78 per cent.

Imports of paper and paper products in August were valued at $7,847,484, compared with $7,348,414 in July and $9,524,134 a year ago. Standard news print, which accounted for $7,145,273 of the August total, showed an increase of 6 per cent over July, but falling 15 per cent short of August, 1931. Imports of cigarette paper, books and covers continued to decline and amounted in August to $261,085, against $320,615 in the preceding month and $383,590 a year ago. Imports of greaseproof and waterproof papers, paper and envelope combinations, surface coated papers and paper boxes were very considerably heavier in August than in the preceding month.

Imports of paper base stocks in August were valued at $3,850,522, an increase of 25 per cent over July, but a decrease of 42 per cent over August, 1931. Imports of rough spruce were valued at $339,125, against $624,185 a year ago and $92,181 in July, those of peeled spruce $613,587, against $510,813 in July and $741,742 a year ago. An increase of 20 per cent was registered in imports of mechanically ground wood pulp, unbleached, and a 28 per cent in the bleached over the preceding month, and while the imports of the former were less by $166,065, the latter showed an increase of 30 per cent when compared with August, 1931. August imports of sulphite wood pulp, both bleached and unbleached were also considerably higher than in July, as was also true in the case of unbleached sulphate pulp, rags for paper stock and soda pulp.

Bids for Government Paper

WASHINGTON, D. C., October 19, 1932—The Government Printing Office has received the following bids for 40,000 pounds of chip board: Bartgis Brothers Company, at 1.25 cents per pound; Consolidated Paper Company, 1.625 cents less 1 per cent; United Paperboard Company, 1.375 cents; Rogers Printing Company, 1.2 cents; Old Dominion Paper Company, 1.249 cents; R. P. Andrews Paper Company, 1.238 cents; T. A. Cantwell & Company, 1.25 cents; Barton, Duer & Koch Paper Company, 1.25 cents; Virginia Paper Company, Inc., 1.25 cents; Whitaker Paper Company, 1.1225 cents; Walker Goulard Plehn Company, Inc., 1.2375 less 1 per cent; Mathers-Lamm Paper Company, 1.2245 cents; Cauthorne Paper Company, Inc., 1.375 cents; and Reese & Reese, Inc., 1.2675 cents.

Carthage Mill May Reopen

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., October 15, 1932—A meeting of prominent business men was held here this week at which plans for reopening the mill of the Carthage Pulp and Board Company were discussed. The plant has been shut down for several months but indications are that all former employees will soon be recalled. At the conference it was decided to perfect an organization to secure the necessary capital to carry on operations and former officials expressed the opinion that the mill can again be conducted on a profitable basis. B. W. Thomas, former office manager of the defunct company, presided and outlined the plans for a resumption of operations.

Plans as arranged call for the production of only high grade manila paper with only a portion of the equipment in operation and it was indicated that a ready market could be found for about sixty per cent of the maximum output of the plant. Under the arrangement the general management of the new concern will be directed by Mr. Thomas, who will have as assistants two former officials of the Carthage Pulp and Board Company. All have had many years of experience in paper manufacturing. The plan as outlined abolishes salaried positions but profits in excess of wages to employees and operating expenses will be used for settling of tax claims which now threaten the foreclosure of the plant.

At the meeting Mr. Thomas presented a report from the past operation of the plant in contrast to figures under the new plan and contended that the deficit under which the defunct concern operated in its final stages would have been eliminated by dispensing with some of the overhead expense. The plant will be operated under lease from the Carthage Pulp and Board Company, but the failure of the plan would cause the closing of it at once by the owners.

Refunds Made to Butler Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

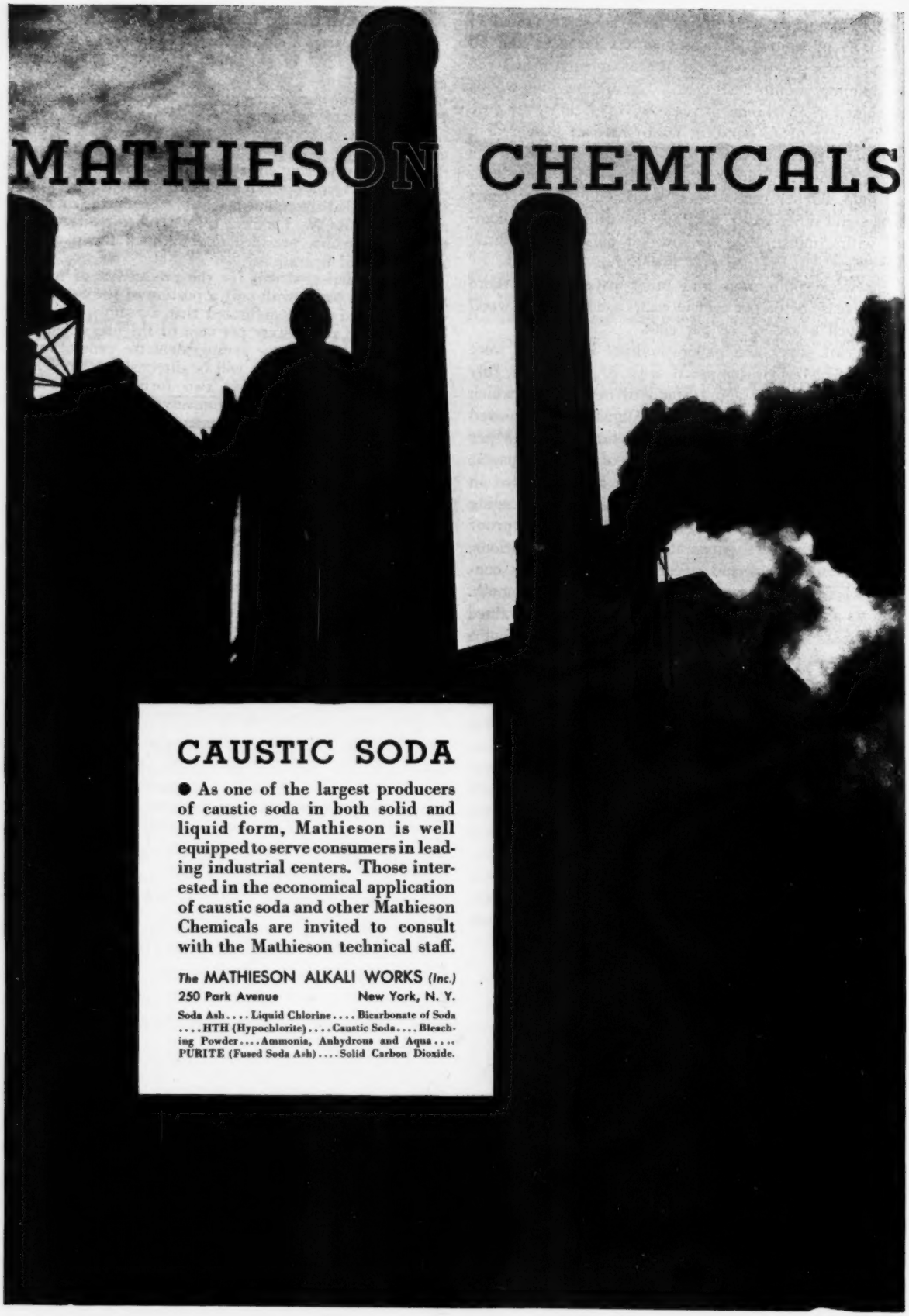
WASHINGTON, D. C., October 19, 1932—Nearly $200,000 refunds have been made to the J. W. Butler Paper Company, Chicago, Ill., and its subsidiaries for over-assessments of income and profits taxes according to announcement made by the Bureau of Internal Revenue.

For the year 1917 the following refunds were made to the company and its subsidiaries: J. W. Butler Paper Company, $16,658.04; Mississippi Valley Paper Company, $143.98; Southwestern Paper Company, $395.94; Pacific Coast Paper Company, $2,017.44; and Sierra Paper Company, $2,038.51.

The following awards of refunds have been made to the J. W. Butler Paper Company: 1918, $108,301.35; for 1919, $22,548.77; for 1920, $32,831.36, and for 1921, $1,911.21.

Properties of Hand-Made Papers

Additional tests of commercial hand-made papers at the Bureau of Standards gave further evidence that the permanency characteristics of this class of paper have much the same range of values as found in machine-made papers. Previous tests showed this to be true as far as stability under the heat test and strength are concerned. Recent tests show that the same thing is true of chemical properties. Thus, a very strong, stable hand-made paper had excellent fiber purity, the alpha cellulose content being 97 per cent and the copper number 0.7. On the other hand the fiber of one of the weak, unstable papers contained only 79 per cent of alpha cellulose, and had a high copper number of 3.6.



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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

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Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Miscellaneous Digesting Processes

Production of pulp. Henry Dreyfus. Fr. pat. 722,430 (Sept. 3, 1931).—Pulp is made by treating wood, plants, etc., with chemical agents at a high temperature and under high pressure created at least in part by the presence of inert gases or vapors.—A. P.-C.

Production of pulp. Henry Dreyfus. Fr. pat. 723,016 (Sept. 19, 1931).—Wood, straw, grass, etc., are soaked in water or in aqueous solutions and then heated in closed vessels, before treatment with chemical agents for the production of pulp.—A. P.-C.

Wood pulping process. Linn Bradley and Edward P. McKeefe assignors to Bradley-McKeefe Corp. U. S. pat. 1,860,570 (May 31, 1932).—Wood is cooked with sodium sulphite liquor containing sodium thiosulphate. Wood is also cooked in an alkaline cooking liquor containing sodium sulphide, and sodium compounds from each of the cooking operations are recovered and used for preparing cooking liquor for the other cooking operations. —A. P.-C.

Wood pulping process. Linn Bradley and Edward P. McKeefe assignor to Bradley-McKeefe Corp. U. S. pat. 1,848,602, (March 8, 1932).—Wood is subjected to a softening treatment comprising solubilizing a portion only of the noncellulosic organic constituents normally insoluble in water by a non-acid sulphite compound, such as normal sodium sulphite, and this solubilizing treatment is discontinued while the softened fiber-bearing material retains a materially larger proportion of undissolved noncellulosic organic matter than is contained in "conventional acid sulphite", soda or sulphate pulp derived from the same kind of wood; the material is then subjected to mechanical disintegration to obtain a product suitable for making paper. —A. P.-C.

Wood pulping process. Linn Bradley and Edward P. McKeefe assignors to Bradley-McKeefe Corp. U. S. pat. 1,860,848 (May 31, 1932).—Wood is cooked in a non-acid sodium sulphite liquor and another batch of wood is cooked in a cooking liquor containing sodium sulphide as the main cooking constituent; sodium compounds are recovered from the residual liquor of each of the cooking operations and are each used in preparing cooking liquor for the other operation.—A. P.-C.

Process for the production of cellulose and other products from fibrous vegetable materials. Theodor Kleinert and Kurt Tayenthal. U. S. pat. 1,856,567 (May 3, 1932).—Wood is treated under pressure and at a temperature above 150° C. with an aqueous alcohol containing 20 to 75% of water. The incrusting substances such as lignin are thus recovered, as well as the cellulose. The aqueous alcohol may be repeatedly renewed during the decomposition, and the process may be accelerated or retarded by addition of acid or basic substances, respectively, in amounts not exceeding 0.1% of the aqueous alcohol.—A. P.-C.

Treatment of fibrous vegetable materials. V.P.H.I.-W. d'Obry. Brit. pat. 367,406, (Aug. 21, 1930).—The dry material in the form of compressed bales or blocks is moistened in a closed chamber by spraying with the condensate produced during a previous steaming process, and is afterwards steamed at 150° to 160° C., removed from the autoclave, and separated into coarse aggregations of fibers suitable for the manufacture of paper, strawboard, etc.—A. P.-C.

Beating

Controlling the beating of paper. G. M. Papeterie 54; 530-538 (May 25, 1932).—A brief general discussion. —A. P.-C.

Paper stock refining engine. Guy S. Brazeau and Henry P. Madsen assignors to Appleton Machine Co. U. S. pat. 1,863,184, (June 14. 1932).—The plug is driven by

an electric motor, the rotor of which is keyed to the shaft of the plug.—A. P.-C.

Hollander Development. L. E. Randecker. Paper Trade J. 95, No. 3; 39-40 (July 21, 1932).—A brief analysis of the problem of increasing the efficiency of beating by means of the hollander, together with a brief description of Randecker's patent beater (U. S. pat. 1, 689,932, Oct. 30, 1928) showing how the conclusions arrived at in the discussion have been incorporated in its design and construction.—A. P.-C.

Beating Pulp. George A. Richter and Milton O. Schur assignors to Brown Co. U. S. pat. 1,859,890 (May 24, 1932).—A portion of the stock is removed during beating, indirectly cooled and returned to the stock being beaten.—A. P.-C.

Bleaching

Use of elementary chlorine in the multiple stage bleaching of sulphite pulp. Percy Waentig. Papier-Fabr. 30, No. 16; 269-270 (April 17, 1932).—By the use of elementary chlorine in the beaters the advantageous washing of the pulp during chlorination can be effected, thus removing the products of chlorination and the hydrochloric acid formed. Milk of lime is recommended for the removal of the remainder of the hydrochloric acid formed during the last stage of the bleaching.—J. F. O.

Chlorination of wood pulp. Ralph B. Hansen. Paper Trade J. 95, No. 3: 30-32 (July 21, 1932).—A brief discussion of the mechanism of the bleaching of pulp by means of chlorine and chlorine compounds.—A. P.-C.

Bleaching sulphite pulp. George A. Richter and Milton O. Schur assignors to Brown Co. U. S. pats. 1,858,522 and 1,858,523 (May 17, 1932).—*No. 1,858,522*—Unbleached sulphite pulp is treated at about room temperature as a flowable aqueous suspension in a solution containing not more than about 0.5 to 1.0% caustic soda based on the weight of the air-dry pulp, followed by washing and bleaching. *No. 1,858,523* relates to a process for treating pulp with a dilute alkaline solution at about room temperature in contact with which it is maintained for some time (suitably about 2 hours) after which a bleaching agent is added to the alkaline solution to bleach the pulp.—A. P.-C.

Bleaching Sulphite Pulp. Charles A. Blodgett assignor to Eastern Manufacturing Co. U. S. pat. 1,855,332 (April 26, 1932).—The material is treated with an acid reducing agent such as sulphur dioxide and is then subjected to an incomplete oxidizing bleach (suitably by use of chlorine) and is finally treated with a reducing bleaching agent such as sulphur dioxide.—A. P.-C.

Superbleaching wood pulp. Raymond S. Hatch assignor to The International Bleaching Corp. Can. pat. 320,388 (March 8, 1932).—A mixture of bleached paper pulp with water is treated with free hypochlorous acid in amount equivalent to 0.02 to 0.07% of available oxygen on the dry weight of the pulp. The superbleached pulp is then washed.—A. P.-C.

Bleaching of rag halfstuff. S. Fotiev and S. Bogdanov. Bum. Prom. 11, no. 1:37-41 (1932); C. A. 26:3665.—Rapid (3-4 hours) bleaching with addition of a mineral acid produces a weaker halfstuff with a considerably larger consumption of calcium hypochlorite as compared with slow bleaching without the addition of a mineral acid. Bleaching with sodium hypochlorite as compared with calcium hypochlorite gives equally good halfstuff with somewhat smaller use of chlorine. The usual stepwise bleaching and that by the method of De Vains give considerably stronger halfstuff with less consumption of calcium hypochlorite than the slow (one-stage) bleaching.—C. J. W.

Sizing

Developments in the preparation of non-fibrous materials. K. A. Taylor, H. C. Schwalbe and H. R. Myers. Paper Trade J. 94, No. 24: 36-38 (June 16, 1932).—A review of developments in the preparation of water for paper making during the past year and in the preparation of paper sizes during the last two or three years.—A. P.-C.

Liquid latex and the paper industry. George D. Kratz. Paper Trade J. 95, No. 1: 28, 30 (July 7, 1932).—A brief discussion of the use of liquid latex in the paper industry.—A. P.-C.

Finishing paper or fiberboard. Albert L. Clapp. U. S. pat. 1,857,497 (May 10, 1932).—Paper filled with lime and asbestos is sized only at its surface portion with reaction products derived from sodium silicate, lime and asbestos, the sodium silicate being applied in solution just before the material is calendered. An apparatus is described.—A. P.-C.

Sizing paper. Societa Anonima Cartiere Giacomo Bosso and Niccolo Silvestrini. Fr. pats. 721,693 and 721,695 (Nov. 19, 1930).—*No. 721,693*—Substance containing the group SiO_2 in the form of an acid or a salt, are added to a sizing bath containing animal gelatin. *No. 721,695*—Fibrous cellulosic materials such as paper are subjected to the action of vapors or gases, such as vapors of acetic acid, at a high temperature before sizing, so as to soften the fibers.—A. P.-C.

Sizing Paper. Paper Makers Chemical Corp. Fr. pat. 720,282 (July 20, 1931).—In making paper, glue or sizing in the form of a dried powder is added to the mass while in the beater. The amount of glue necessary is thereby reduced and the working simplified.—A. P.-C.

Dyeing

Some variations in beater dyeing. D. Cameron. World's Paper Trade Rev. 96: 1162, 1221, 1223 (April 8, 1932).—A brief discussion of variations in color in beater dyeing, due to furnish and to dyes, with precautions to be taken to avoid or minimize them.—A. P.-C.

Colors used in the manufacture of insulating papers. A. R. Matthis. Caoutchouc et Gutta-Percha 29: No. 15, 878-880 (1932).—A general survey.—A. P.-C.

Dyed coated paper for the printing and packing industries. George Rice. Dyer Calico Printer 67:131 (1932).—A brief description of the types of coated papers and cardboards in use, and a discussion of the importance of color fastness and types of dyestuffs to use.—A. P.-C.

Loading and Coating Materials

Effect of mineral fillers and atmospheric humidity on paper. Théodore Paquet. Non. Papeterie Belge 12: 327-330 (May, 1932).—A brief discussion of the effect atmospheric humidity and moisture content of kaolin on the composition of paper as calculated from analytical results.—A. P.-C.

Effect of white water on sheet properties. E. R. Schafer. Paper Trade J. 95, No. 2: 30-32 (July 14, 1932).—Presence of white-water fiber in book paper up to about 2 per cent and in newsprint up to about 5 per cent has no effect on the physical properties.—A. P.-C.

Loading Paper. Clyde A. Benson Assignor to Raffold Process Corp. U. S. pat. 1,847,291 (March 1, 1932).—Finely divided calcium carbonate used as a loading for sized paper is rendered passive to the action of alum by treating the calcium carbonate with paraffin emulsified in an aqueous solution of rosin size.—A. P.-C.

Paper. Harold R. Rafton assignor to Raffold Process Corp. U. S. pats. 1,848,658, and 1,848,659 (March 8, 1932).—*No. 1,848,658*—In the manufacture of substantially unsized paper filled with an alkaline filler, fibrous material is mixed with a breakable emulsion of paraffin in

an amount insufficient to impart a substantial degree of sizing to the paper, an acidic precipitant such as alum and alkaline filler such as calcium carbonate and magnesium hydroxide, and paper is formed from the mixture. *No. 1,848,659* relates to the manufacture of paper filled with carbonate filler, with use also of a breakable paraffin emulsion and alum as a precipitant.—A. P.-C.

Paper coating development report. J. J. O'Connor. Paper Trade J. 94, No. 25: 35-36 (June 23, 1932): Tech. Assoc. Papers Series XV: 295-296 (June 1932).—An outline of the work carried out by the T.A.P.P.I. finishing, processing and converting committee from July 1931 to February 1932, with an outline of recent developments in the preparation of coating materials, coating machines and use of new coating raw materials and a brief review of recent literature (with abstracts).—A. P.-C.

Effect of calcium and phosphorus on the adhesive strength of paper-coating casein. S. P. Gould and E. O. Whittier. Ind. Eng. Chem. 24: 791-793 (July, 1932).—Calcium and phosphorus both reduce the adhesive strength of casein, but the latter has the greater weakening effect. The reason for this appears to be chemical rather than mechanical.—A. P.-C.

Aqueous emulsions of cellulose derivatives for coating and impregnating paper. E. I. du Pont de Nemours and Co. assignors to Imperial Chemical Industries, Ltd. Brit. pat. 351,444 (Dec. 19, 1929).—Numerous details and examples are given of the preparation of aqueous emulsions of pyroxylin and the like by inventing a preformed "water-in-oil" emulsion in the presence of a suitably regulated quantity of water.—A. P.-C.

Paper coating. Peter Spence and Sons, Ltd. Fr. pat. 720,702 (July 28, 1931).—Anhydrous calcium sulphate in a fine state of division and of close texture is used as a constituent of paper coatings.—A. P.-C.

Study of casein-clay solutions used for the coating of paper. E. F. Eldridge. Michigan Engineering Expt. Sta., Bull. No. 42. 1932. 13 p. C. A. 26: 3665.—The optimum temperature and time period used for the preparation of the mixture is either 50 deg. C. for 55 minutes or 65 deg. C. for 25 minutes. Rapid cooling and low-temperature storage are essential. Storage increases the viscosity by virtue of casein decomposition. The optimum application temperature is 45 deg. At 45 deg. there is very little difference in viscosity of mixtures containing varying amounts of casein. Storage at a high hydrogen ion concentration is desirable. *o*—Phenylphenol (0.5 per cent) and 0.5 per cent borax were satisfactory bactericides. Sodium benzoate and salicylic acid were of no value. The formula adopted for the casein solution was: Casein 100, water 740 and sodium silicate (42 deg. Baumé) 40 pounds.—C. J. W.

Paper Permanency

Permanence of paper. B. L. Wehmhoff. Paper Trade J. 94, No. 23: 57-59 (June 9, 1932).—A brief review of the present status of the problem of specifications for permanent papers and of tests for permanency.—A. P.-C.

Report of bureau of standards research on preservation of records. B. W. Scribner. Library Quart. 1, No. 4: 409-420 (1931).—The article discusses the permanency of paper and tells what is being done and planned with reference to this subject at the U. S. Bureau of Standards.—A. P.-C.

Deteriorative effect of sulphur dioxide on paper in an atmosphere of constant humidity and temperature. Arthur E. Kimberly. Bur. Standards J. Research 8: 159-171 (1932).—Commercial book and writing papers were exposed 240 hours to air containing 2 to 9 parts sulphur dioxide per million, at 30° C. and 65 per cent relative humidity. A marked loss in folding endurance resulted. Little change in tensile breaking length was observed. Total acidity and copper number increased while alpha-cellulose content remained constant.—A. P.-C.

Drying

Moisture control in drying pulp. C. C. Ryan. Pulp Paper Can. 33: 186 (June, 1932).—The thickness of a bale of pulp under pressure of the baling press varies consistently with the moisture content of the pulp provided the size of the sheet, weight of pulp in the press and total load exerted by the press are constant. A switch arrangement operating different colored lights through the movement of the press platen has been devised to show the operator the approximate moisture content of the bale during the pressing.—A. P.-C.

Different systems of board driers. B. Raab. Mon. Papeterie Belge 12: 195-198 (March, 1932).—A brief description of the various types of air driers in which the boards are suspended vertically or are supported horizontally.—A. P.-C.

Saturated versus superheated steam in paper machine driers. J. B. Gough. Pulp Paper Can. 33:234-236, 264 (July, 1932).—A discussion of the mechanism of heat transfer from steam to paper in paper machine driers, showing the superiority of saturated (or even wet) steam over superheated steam.—A. P.-C.

Hygroscopic moisture of cellulose. V. Drying method of celluloses. Sutezo Oguri. J. Soc. Chem. Ind. Japan 35 (Supp. Binding): 232-234 (June, 1932).—A comparison of the drying of different forms of cellulose by: (1) heating in air 4 hrs. at 100° to 105° C., (2) dehydrating over phosphorus pentoxide for 40 days at an absolute pressure of 0.005 mm. of mercury, (3) heating in vacuum, showed that (2) was the most efficient method, followed by (1). The difference in the effectiveness of the two methods varied considerably with different types of cellulose. On the whole, in celluloses of low hygroscopocity, moisture is expelled as readily by (3) as by (1). The author considers that when practically all the moisture is removed by vacuum drying, the cellulose has a comparatively simple internal adsorption surface, and therefore concludes from his results that the micellar structure of standard cellulose is less complicated than that of mercerized cotton, viscose or wool.—A. P.-C.

Drying sheet material such as rag felt paper. Harry E. Holcomb assignor to Fiberfraks, Inc. U. S. pat. 1,854,191 (April 19, 1932).—The material is passed over the top of a series of rolls heated by a molten metal bath into which their lower portions dip, the temperature of the bath being higher than the boiling point of the liquid which it is desired to remove from the material.—A. P.-C.

Drying wood pulp. William K. Talbot assignor to Ossian Anderson. U. S. pat. 1,850,733 (March 22, 1932).—Wet pulp is separated into a substantially loose divided condition by pulling relatively small pieces from the body of the pulp without injuring the fibers, and the pulp is dried in such a condition.—A. P.-C.

Pulps, Treatment of

Paper Pulp. Lewis L. Alsted. U. S. pat. 1,847,326 (March 1, 1932).—Slush groundwood is mixed with a substance such as sulphite pulp and bentonite capable of entering into a final product made from the pulp and which renders the pulp, when dry, uniformly pervious to water and readily returnable to its original pulp condition, and the pulp is then dried to substantially atmospheric dryness.—A. P.-C.

High-Alpha cellulose. Albert H. Hooker assignor to Hooker Electrochemical Co. U. S. pat. 1,847,111 (March 1,

1932).—Sulphite fiber is converted into high alpha-cellulose by treatment with caustic soda solution; the concentration of the effluent liquor is restored and the liquor is then used for conversion of wood fiber into soda pulp; the effluent from the soda-pulping operation is purified and regenerated and the regenerated and purified liquor is used for production of high alpha-cellulose, and the cycle is repeated.—A. P.-C.

Production of pulp high in alpha-cellulose. George A. Richter assignor to The Brown Co. Can pat. 322,836 (May 31, 1932).—Raw cellulosic material is steeped in a caustic soda solution containing an oxidizing agent at a sufficiently low temperature to be mercerizing until the oxidizing agent is largely consumed. The solution is heated to above the mercerizing temperature and then the material is cooked to complete fibre liberation in a sulphurous acid solution.—A. P.-C.

Pulp for absorbent paper. Frank H. McCormick and George L. Schwartz assignors to Celastic Corp. U. S. pat. 1,857,100 (May 3, 1932).—An absorbent pulp is produced by dispersing cellulose fibers of paper making length in pulp form with a swelling agent such as caustic soda solution and stopping the reaction between the pulp and swelling agent when the crinkling of the fibers is sufficient to produce a freeness increase above 14 per cent.—A. P.-C.

Treatment of wood pulp. René Dosne assignor to Canadian International Paper Co. U. S. pat. 1,854,331 (April 19, 1932).—Cellulose pulp is treated with a mercerizing solution and the mercerized pulp is further treated with an aqueous sulphur dioxide solution to obtain a product which is suitable for use in rayon manufacture.—A. P.-C.

Preparation of alpha-cellulose pulp. Hugo H. Hanson and Stewart E. Seaman assignors to Eastern Manufacturing Co. U. S. pat. 1,851,008 (March 29, 1932).—Cellulose suitable for esterification or etherification is obtained by submitting air-dry cellulosic fibrous material such as wood pulp to impact-attrition.—A. P.-C.

Wood pulp for nitration. George A. Richter, Milton O. Schur and Royal H. Rasch assignors to Brown Co. U. S. pat. 1,851,330 (March 29, 1932).—Mercerized wood fiber is prepared in fluffy condition resembling cotton linters.—A. P.-C.

Method of treating mechanical wood pulp. Per klem. U. S. pat. 1,865,768, (July 5, 1932).—The knots, splinters and slivers produced in grinding wood are separated from the chips, fibers and flour. The latter are screened to separate the flour from the fiber and chips. The latter again are screened to separate the finer constituents, which are united with the flour. The residue from the second screening operation is again screened to remove chips and the accepted stock is thickened, beaten to loosen and open up the fiber bundles and render them pliable, mixed with the accepted stock of the first and second screenings, and the resultant stock is finally mixed with chemical pulp.—A. P.-C.

Method of purifying cellulosic pulps. George A. Richter assignor to Brown Co. U. S. pat. 1,859,891 (May 24, 1932).—Cellulosic fibrous material such as raw wood pulp is treated with a chemical liquor such as dilute caustic soda solution serving as a refining agent, a portion of the water is frozen out of the liquor to increase its concentration and refining activity while substantially preserving the fibrous material in solid condition, followed by thawing and washing.—A. P.-C.

Production of low-viscosity fiber. George A. Richter assignor to Brown Co. U. S. pats. 1,860,431 and 1,860,432 (May 31, 1932).—*No. 1,860,431*—Fiber such as wood fiber is digested, as a suspension, in a hot solution of ferric nitrate or other suitable "ic" compound of a metal of the iron-cobalt-nickel group. *No. 1,860,432* describes a process in which a suspension of wood pulp is oxygenated in suspension in an alkaline solution such as dilute sodium hydroxide under a pressure of oxygenating gas materially greater than the vapor pressure of the solution.—A. P.-C.

Reduction of solution viscosity of cellulose fiber. George A. Richter assignor to The Brown Co. Can. pat. 323,240 (June 14, 1932).—A refined wood pulp high in alpha-cellulose is digested at 150° in a sulphurous acid solution of a sulphite containing no more free than combined sulphur dioxide for 3 hours; the solution viscosity is thus greatly reduced while the alpha-cellulose content is practically unaltered.—A. P.-C.

Purification of pulp. George A. Richter assignor to The Brown Co. Can. pat. 323,237 (June 14, 1932).—A suspension of preliberated sulphite pulp is digested in an ammoniacal solution above 150° until the pulp acquires an alpha-cellulose content of at least 94.5 per cent; e.g., an unbleached sulphite pulp containing 87 per cent alpha-cellulose and 3.9 per cent pentosan is digested at a consistency of 5 to 10 per cent in a 0.5 per cent solution of ammonia at 200° for 3 hours under a maximum pressure not exceeding 200 lb. per sq. in. The product, when washed, contains 94.5 per cent alpha-cellulose and 1.7 per cent pentosan. The yield is 85 per cent based on the weight of dry pulp used as a raw material.—A. P.-C.

Refinement of cellulose fiber. George A. Richter assignor to The Brown Co. Can. pat. 323,241 (June 14, 1932).—A preliberated and refined pulp high in alpha-cellulose is digested at not less than 175° in water low in hydroxyl ions to lower primarily the solution viscosity of the pulp; e.g., a suspension of kraft pulp is digested for 4 hours in a 0.1 to 0.2 per cent solution of caustic soda at 250° to 300°. The product contains 94 per cent of alpha-cellulose, and its solution viscosity is 1.5.—A. P.-C.

Chemical modification of cellulose fibers. George A. Richter assignor to The Brown Co. Can. pat. 323,238 (June 14, 1932).—Raw pulp is treated with a bisulphite solution to react upon ligneous groups present in the pulp. The free sulphurous acid is removed from the solution and the pulp is digested in the resulting sulphite solution at 300° to 400° F. to hydrolyze certain of its components. The pulp is then treated with an alkaline reagent to dissolve products of hydrolysis and other non-alpha-celluloses. The product is high in alpha-cellulose and is suitable as a raw material for paper making or conversion into cellulose derivatives.—A. P.-C.

Cleansing pulp. Zellstofffabrik Waldhof, H. Müller-Clemm and W. Leupold, Brit. pat. 368,012 (Jan. 23, 1931).—The digested pulp is thoroughly mixed by means of air or steam with washing water added intermittently or continuously, preferably on the countercurrent principle, after or during which water is introduced into the container at the bottom and the waste water containing soluble and insoluble impurities is led off above the pulp through an overflow.—A. P.-C.

Analytical and Testing Methods

Determination of methoxyl groups in wood or pulp. Anon. Paper Trade J. 94, No. 18: 44 (May 1932).—A description of the tentative official standard T.A.P.P.I. method.—A. P.-C.

Determination of cuprammonium viscosity. Anon. Paper Trade J. 94, No. 19; 38-39 (May 12, 1932).—A description of the tentative official standard T.A.P.P.I. method.—A. P.-C.

Analysis of casein. Anon. Paper Trade J. 94, No. 21: 23-24 (May 26, 1932).—A description of the tentative official standard T.A.P.P.I. method.—A. P.-C.

A Study of Physical Properties of Binders Board*

By B. W. Scribner[1] and L. W. Snyder[2]

Abstract

A study was made in cooperation with the Binders Board Manufacturers Association of the important physical properties of binders board. This product is made specifically for binding books. The test samples used were representative commercial products. The properties tested were thickness, density, weight, bursting strength, tensile breaking strength and elongation, and behavior under flexural stresses. Uniformity of thickness is necessary for satisfactory operation of the automatic machines used to make and print book covers. If the board does not have the correct density, uneven prints or excessive wear on the printing plates may result. The board must have high strength to withstand satisfactorily the severe stresses incident to both the bookbinding operations and the handling of the book. A study was made of bursting, tensile, and flexural-strength tests, and it was concluded that the flexural-strength test was the most suitable because of its duplication of service stresses and its superior accuracy. The board had satisfactory uniformity of thickness and density, associated with high resistance to flexural stresses. The association adopted standards of quality based on the results of the study.

Introduction

A study of the obviously important physical properties of binders board was made in the paper section of the Bureau of Standards at the request of the Binders Board Manufacturers Association and with their assistance. Data on the properties studied were desired by the association for their use in formulating standards of quality, as the available data of this kind were very limited.

Description of Binders Board

Binders board is made specifically for binding books and is defined as "a distinguishing name applied to the highest quality pulp boards made to full thickness in one operation; not a chip, news or pasted board."[3] The manufacturing details are essentially as follows. The fibers are generally obtained by defibering waste papers. The fibers are introduced in thin mixture with water into a vat, in which revolves a horizontal cylinder covered with a fine-mesh wire screen. The water drains through the screen, leaving on it a mat of pulp. This mat is transferred continuously as a wet sheet from the cylinder to a traveling felt, which conveys it to press rolls. The sheet winds around the top press roll under continuous pressure and when the desired thickness is obtained, it is cut and transferred to a press, where a pile of the moist sheets is subjected to heavy pressure. This operation removes the greater part of the remaining water, reduces the sheets to less than one-half their original thickness, and knits the fibers densely and firmly together. The single sheets are dried slowly in a hot chamber, then moistened slightly, and finally pressed between steel calender rolls to the desired thickness, density, and smoothness. These manufacturing details are included because they all have an important bearing on the physical properties of the boards.

The primary classification of binders board in the trade is by thickness expressed in points, a point being one thousandth of an inch. The boards are made in standard sizes adopted by the industry,[4] and in other sizes to meet special requirements.

Description of Test Samples

Thirty-five samples of commercial boards, approximately 27 by 33 inches in size, were used for the experimental tests. They comprised seven sets, each representative of the five different standard thicknesses, each set being the product of a different manufacturer. All of the boards were composed of fibers with no admixed materials, the fiber components being mainly or wholly unbleached wood fibers and ground wood fibers mixed.

The samples were submitted by the Binders Board Manufacturers Association as thoroughly representative of the current products.

Discussion of Important Properties

The property of paramount importance in the serviceability of binders board is resistance to the stresses, mainly of a flexural nature, incident to the binding operations and the handling of the finished book. In binding a book, the boards are subjected to severe strains by fast-running, automatic machines, in such operations as cutting them to size, pasting on the covering material, and imprinting the titles and designs. Severe and uneven stresses may also occur through the uneven pull of the cloth and the linings as they shrink in the process of drying.

Uniformity of thickness is necessary for satisfactory operation of the automatic "case-making" machines, which form the covers, and both thickness and density are important relative to printing the cover. If the thickness is not sufficiently uniform, or if the board does not have the correct density, uneven prints or excessive wear on the printing plates may result. The boards are made very dense by the wet-pressing operation of manufacture, which is necessary for the high degree of flexural strength required, but if the density is too great the resultant hardness causes rapid wear of the printing plates.

Methods of Testing

To test the strength of the boards, the methods applicable for paper products were employed for determinations of bursting strength and tensile breaking strength. In addition resistance to flexural stresses was measured, as such stresses simulate more closely those actually occurring in the use of the boards than do the stresses applied by the more common methods used in testing the strength of paper.

The boards were conditioned and tested for weight, thickness, bursting strength, and tensile breaking strength essentially according to the official paper-testing methods of the Technical Association of the Pulp and Paper Industry.[5] Three days of exposure to the conditioning at-

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[1] Member TAPPI, Chief, Paper Section, Bureau of Standards, Washington, D. C.

[2] Assistant Engineer, Bureau of Standards, Washington, D. C.

[3] Palmer, A. Course in Bookbinding for Vocational Training, Employing Bookbinders of America, Inc., New York, P. 412, (1927).

[4] Binders Board, Simplified Practice Recommendation R 81-28. Government Printing Office, Washington, 1928.

[5] Paper Testing Methods, by Committee on Paper Testing, TAPPI, New York, (1928).

mosphere of 65 per cent relative humidity at 70 deg. F. was required for the test specimens to attain moisture equilibrium with it. There is no standard testing method for measuring resistance to flexural stresses. A modified procedure previously developed at the bureau for testing fiber building boards,[6] and the Naumann-Schopper Bending Tester were both used for this purpose. The details of the various testing procedures, other than those included in the standard methods mentioned, or differing from these, follow.

Four specimens 5 by 5 inches in size, were used for determining weight and thickness. The length and breadth of the specimens were measured to an accuracy of 0.01 inch, and they were each weighed on a paper ream-weight balance. From the average weight, the weight in pounds of 500 boards, 25 by 40 inches in size, was calculated. This form of expressing weight was used as it has been proposed as uniform practice for all paper products. The thickness was obtained as the average of twenty determinations, ten with one side of the specimen against anvil of the micrometer and ten with the other side, at different points across the full width of the specimens, and in the direction of the shorter dimension of the sample board. The density was calculated from the average dimensions and weights. To find the average bursting strength, one test was applied to each side, near opposite ends, of five test specimens, approximately 5 by 15 inches in size.

The tensile breaking tests were made on strips 1 inch by 5 inches in size. The elongation and breaking strength were recorded graphically in inches and pounds respectively, per three-inch gauge length and one-inch width.

Flexural-strength tests are commonly made by supporting the test specimen on two separated parallel knife-edges and applying a load to the specimen at midspan through a third knife-edge parallel to the other two. In testing

[6] Properties of Fiber Building Boards, Weber, Carson and Snyder, Misc. Pub. Bureau of Standards No. 132 (Dec. 1, 1931).

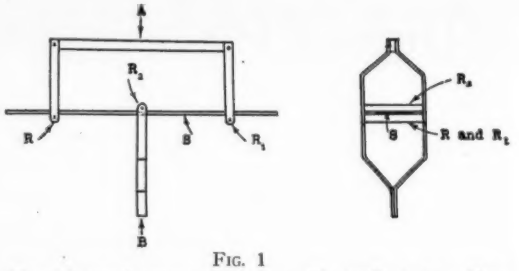

FIG. 1
Flexural-strength apparatus for use with tensile test machine.

boards, however, rods have been found more satisfactory than knife edges, the rods used for binders board being ⅛ inch in diameter. The rods were used in the form of stirrups clamped in a standard type of paper tensile breaking strength tester. Fig. 1 shows the details of the stirrup device. Clamp A was fastened in the upper jaw of the tensile strength tester and clamp B in the lower or loading jaw. Clamp B was so adjusted that R_2 was parallel to R and R_1, and the instrument scale reading was corrected for the weight of the device. A point was marked on the specimen S equidistant from its ends and the specimen was so placed that this point was under the center of the rod R_2 of the lower clamp. The method and the rate of loading were the same as outlined in the standard method for determining tensile breaking strength of paper.[5] The distance between supports R and R_1, was 3 inches, and the size of the test specimens was 1 by 5 inches. A recording device was used which gave a graphic record of the applied load and the deflection of the board. Fig. 2 shows a complete apparatus for making tests of this kind.

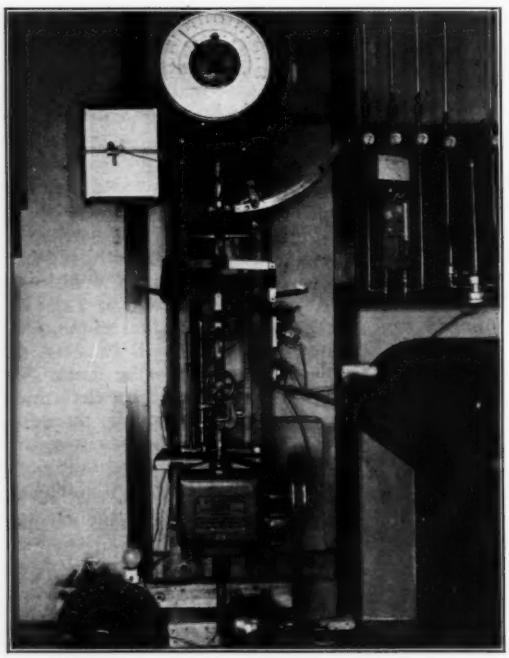

FIG. 2
Flexural test of board with a modified paper tensile-strength tester.

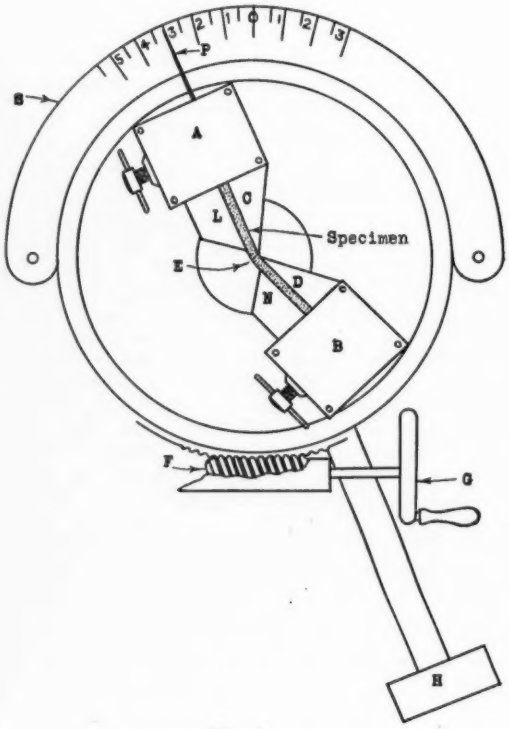

FIG. 3
Details of Naumann-Schopper bending tester.

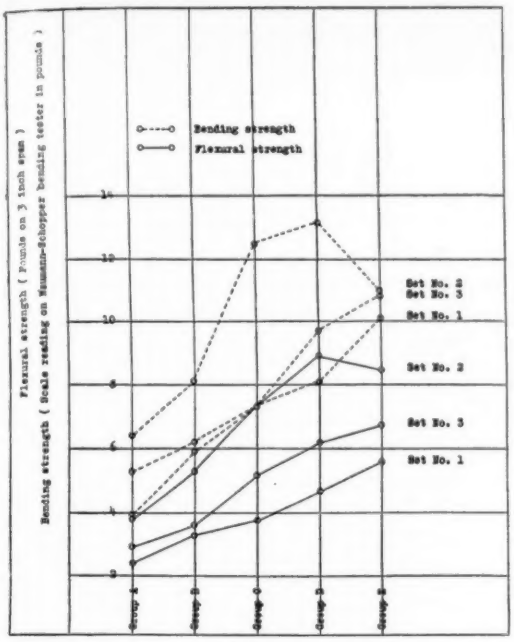

FIG. 4
Relations between flexural and bending tests.

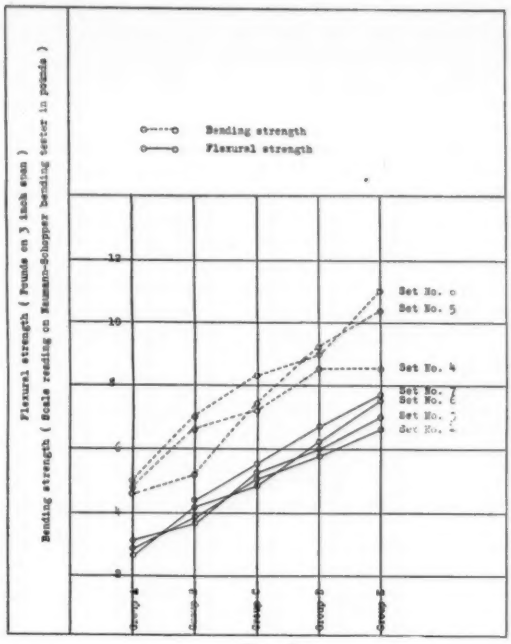

FIG. 5
Relation between flexural and bending strength.

TABLE I
TESTS OF BINDERS BOARD

Sample No.	Weight 25x40 inches 500 sheets, pounds	Thickness, inch	Bursting strength, points [1]	Tensile properties [2]				Flexural properties [3]				Bending strength [4]		Density g/cm [3]
				Breaking load		Elongation at rupture		Breaking load		Deflection at rupture				
				Length-wise, pounds	Cross-wise, pounds	Length-wise, inch	Cross-wise, inch	Length-wise, pounds	Cross-wise, pounds	Length-wise, inch	Cross-wise, inch	Length-wise, kg	Cross-wise, kg	
				Group A—Standard thickness 0.058 inch										
1A	885	0.0540	262	234	125	0.14	0.12	2.4	1.8	0.30	0.48	1.8	1.5	0.916
2A	1115	0.0640	335	310	169	0.16	0.17	3.8	2.6	0.29	0.48	2.9	1.9	0.965
3A	1012	0.0650	312	235	138	0.14	0.19	2.9	2.1	0.35	0.47	2.4	1.7	0.866
4A	959	0.0603	265	239	131	0.15	0.17	2.9	2.0	0.36	0.50	2.2	1.5	0.891
4A	1000	0.0606	240	211	127	0.13	0.15	3.0	2.1	0.39	0.52	2.1	1.6	0.917
6A	964	0.0610	259	238	122	0.15	0.15	2.7	1.8	0.33	0.52	2.3	1.3	0.872
7A	....	.....	...	...	...	...	...	..	..	...	...	..	..	....
Average	989	0.0608	278	245	135	0.14	0.16	3.0	2.1	0.35	0.50	2.3	1.6	0.904
				Group B—Standard thickness 0.070 inch										
1B	1147	0.0703	318	224	146	0.12	0.13	3.3	2.4	0.24	0.38	2.7	2.0	0.905
2B	1317	0.0710	421	421	203	0.18	0.18	5.3	3.6	0.44	0.50	3.7	2.6	0.961
3B	1159	0.0756	278	252	146	0.16	0.18	3.6	2.6	0.24	0.42	2.8	1.9	0.848
4B	1100	0.0716	312	309	147	0.16	0.15	3.9	2.6	0.30	0.45	3.0	1.7	0.860
5B	1173	0.0737	283	265	142	0.13	0.15	3.7	2.6	0.32	0.45	2.4	1.9	0.882
6B	1148	0.0725	354	314	149	0.12	0.19	4.1	2.8	0.29	0.48	3.2	2.0	0.874
7B	1195	0.0750	393	340	180	0.14	0.16	4.4	3.2	0.30	0.50	..	..	0.875
Average	1177	0.0737	337	304	159	0.14	0.17	4.0	2.8	0.30	0.45	2.9	2.0	0.886
				Group C—Standard thickness 0.080 inch										
1C	1324	0.0808	353	273	163	0.16	0.13	3.8	3.1	0.22	0.35	3.3	2.5	0.906
2C	1716	0.0917	...	489	140	0.14	0.18	7.3	5.2	0.25	0.45	5.7	3.5	1.033
3C	1359	0.0974	369	319	181	0.14	0.17	5.2	3.8	0.28	0.46	3.3	2.6	0.944
4C	1343	0.0819	343	317	167	0.14	0.14	5.0	3.4	0.25	0.40	3.3	2.5	0.849
5C	1313	0.0823	336	325	181	0.14	0.17	5.0	3.4	0.29	0.45	3.4	2.4	0.883
6C	1308	0.0807	384	330	183	0.13	0.15	4.9	3.4	0.31	0.44	3.8	2.6	0.894
7C	1388	0.0808	473	408	224	0.15	0.16	5.6	4.0	0.33	0.42	..	..	0.943
Average	1393	0.0818	376	352	177	0.14	0.16	5.3	3.8	0.28	0.42	3.8	2.6	0.921
				Group D—Standard thickness 0.088 inch										
1D	1432	0.0898	377	273	190	0.13	0.13	4.7	3.6	0.25	0.34	3.7	2.7	0.883
2D	1625	0.0937	...	491	255	0.17	0.18	8.9	6.6	0.24	0.45	6.0	4.2	0.950
3D	1509	0.0928	455	350	208	0.16	0.17	6.1	4.3	0.33	0.48	4.4	3.3	0.900
4D	1365	0.0913	372	343	177	0.15	0.16	5.8	3.8	0.24	0.40	3.9	2.7	0.835
5D	1519	0.0924	318	290	163	0.13	0.16	5.9	4.3	0.29	0.37	4.2	2.8	0.906
6D	1493	0.0892	460	365	206	0.19	0.22	6.2	4.3	0.25	0.35	4.1	3.0	0.925
7D	1468	0.0934	469	419	219	0.15	0.17	6.7	4.9	0.40	0.50	..	..	0.863
Average	1487	0.0924	408	362	203	0.17	0.17	6.3	4.5	0.29	0.41	4.4	3.1	0.894
				Group E—Standard thickness 0.098 inch										
1E	1578	0.0955	469	414	223	0.13	0.15	5.6	4.5	0.29	0.40	4.6	3.1	0.910
2E	1739	0.1041	...	400	222	0.14	0.15	8.5	5.8	0.30	0.42	5.0	3.9	0.920
3E	1733	0.1064	483	343	214	0.15	0.16	6.7	5.0	0.35	0.46	4.9	3.5	0.908
4E	1518	0.1021	371	395	169	0.13	0.15	6.6	4.0	0.28	0.38	3.9	2.6	0.915
5E	1599	0.1023	358	327	187	0.16	0.15	7.1	4.8	0.32	0.40	4.7	3.2	0.860
6E	1568	0.1025	493	421	212	0.18	0.21	7.6	5.3	0.41	0.45	5.0	3.6	0.842
7E	1709	0.1002	555	507	261	0.15	0.17	..	..	....	....	..	..	0.936
Average	1634	0.1012	454	401	213	0.15	0.16	7.0	4.9	0.33	0.42	4.6	3.3	0.898

[1] Bursting pressure in lbs. per inch [2] through a circular orifice 1.2 inches in diameter. Average of 10 tests.
[2] For test specimens 1 inch wide and 3 inches between jaws. Average of 10 tests.
[3] For test specimens 1 inch wide and 5 inches long—Length of test span, 3 inches. Average of 8 tests.
[4] For test specimens 2 inches wide. Average of 6 tests with Naumann-Schopper tester.

In using the Naumann-Schopper bending tester the test specimens were cut 2 x 6 inches and clamped in the jaws A and B, as shown in Fig. 3. The inner faces C and D of the two clamp jaws A and B are in the same plane with ends touching when the instrument is in zero position. The outer faces L and N are adjustable to permit the insertion of boards of different thicknesses. The board is bent by turning handwheel G, thus actuating worm F, causing clamp B to revolve about a center E. The resistance of the board to the applied stress causes clamp A, which is fastened to a weighted pendulum H, also to revolve about the center E. The total movement of clamp A is dependent upon the resistance the board offers to the increasing load applied through the movement of clamp B. When the board is broken, a maximum indicating pointer which follows the movement of clamp A, indicates the bending strength on scale S. This instrument is also provided with an attachment for recording graphically the load and deflection throughout the entire test.

Discussion of Test Results

The average test results for each sample, and for each group of samples representative of a standard commercial thickness are given in Table I.

Order of grading	Flexural strength	Bending strength	Bursting strength	Tensile strength
1	②	②	②	②
2	⑦	⑦	⑦	⑦
3	⑥	⑥	⑥	⑥
4	④	④	④	④
5	⑤	⑤	①	⑤
6	③	③	⑤	①
7	①	①	③	③

FIG. 6

Relative strength grading by different kinds of tests, in descending order. Numbers in circles are sample numbers.

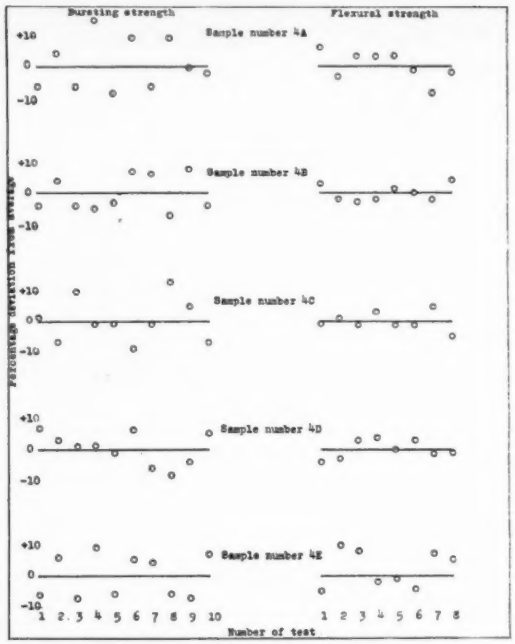

FIG. 7

Variation of individual strength test results from average values.

The average thickness of the different boards comprising a sample was found to be quite uniform, the variation usually falling well within plus or minus 5 per cent, and the individual measurements of thickness usually not varying more than plus or minus .003 inch. These variations are within the requirements for the cover-making machines. With the exception of one set of boards, which in general had characteristics different from all of the other sets, the variation in density was not more than 12 per cent.

As in most paper products, a difference in the bursting strength was found when the position of the test specimen was reversed relative to the bursting pressure, one side constantly yielding a lower result than the other. The difference, which was from 5 to 30 per cent, is no doubt largely due to the difference in the compactness of the fiber structure of the two opposite surfaces. Tests made with a plastometer, which indicates the depth to which a rounded surface penetrates under a fixed load, showed a considerable difference in the compactness of the two sides of the boards. On comparing the plastometer values with the bursting strength tests, the latter were found to be constantly lower when the bursting pressure was applied to the more compact surface of the board. The greater part of the difference in compactness is probably due to changing the original cylindrical form of the material to a flat sheet in the course of manufacture.

Figs. 4 and 5 show that the two types of flexural tests yield parallel data, although the observed values obtained with the Naumann-Schopper apparatus are higher than the corresponding values obtained with the Bureau of Standards apparatus. The difference is due to the use of a wider test specimen and a shorter test span in the Naumann-Schopper apparatus.

Fig. 6 represents, for boards nominally 0.070 inch thick and for the seven sets tested, the relative order of strength grading by the different kinds of tests applied, the samples

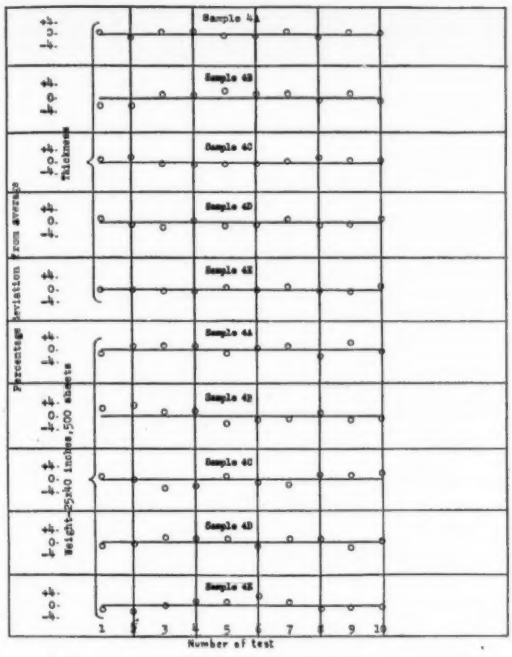

FIG. 8
Variation of individual weights and thicknesses from average values.

being arranged in descending order of strength. The numbers within the circles, designate the samples and the relative order of grading is shown by the numbers in the first column. Samples 2, 7, 6 and 4 have the same relative order of grading by all of the strength-testing methods employed, and while samples 5, 3 and 1 show some divergence from a constant relative order, these boards were more alike in strength than the others, and the divergences may therefore be due partly to unavoidable experimental errors. A similar relation of strength data occurred for the other thicknesses. It may be concluded therefore that the choice of methods of testing strength should depend primarily on their relation to service stresses and their degree of reproducibility.

The stresses to which binders board are subjected, both in the bookbinding operations and when serving as book covers, are primarily flexural stresses, and the flexural tests described permit a practical measurement of resistance to such stresses. The extent the board will deflect in this test before breaking is particularly valuable as a measure of its flexibility—an important factor in its serviceability. A board may have high resistance to the stresses applied in the bursting and tensile tests and yet lack the degree of flexibility that will enable it to withstand deformation and breaking under bending stresses. Fig. 7 was arranged to show the relative reproducibility of the strength-testing data as secured by the Bureau flexural strength test and by the bursting test which is in common use at present. The points represent the percentage departure of the individual strength values from the average value, which is represented by a straight line. The points represent the individual test results spaced evenly from left to right in the order in which they were secured. The tests for sample 4, in the different thicknesses, were used to plot these points, which are typical of those for all of the samples. The superior uniformity of the data obtained by the flexural test is apparent, and this, in conjunction with its similarity to service stresses, recommends its use for testing this material. The bending test and the tensile test have reproducibility similar to that shown for the Bureau flexural test. As to choice between the two types of flexural tests the Bureau of Standards test has the advantage that it is performed with a simple attachment to a standard testing machine already in extensive use for testing papers and fibrous products in general.

Fig. 8 portrays graphically in the same manner as Fig. 7, the variation of the weight and thickness of the boards used. These data appear to show sufficient uniformity for the use to which the board is put.

The Binders Board Manufacturers Association adopted specifications of quality for binders board [7] based on the data obtained in this study.

Heat Recovery in Sulphite Cooking

Kapuskasing, Ontario, September 29, 1932

Editor, PAPER TRADE JOURNAL,

Some points of interest, relative to the history of hot acid systems, were recently discussed in an article titled "Practical Sulphite Cooking" by Mr. Ragnar Monnberg, appearing in the Sept. 22, 1932 issue of the PAPER TRADE JOURNAL.

Inasmuch as parts of the article are presented in the form of a "resume" and are apparently recorded as a complete historic account of the development of hot acid systems for the sulphite process, it is my desire to call attention to an omission in the historical data as set forth under the subtitle "The History of Hot Acid Systems" by the author of the above article.

As early as 1912, I advocated, for many excellent reasons, the recovery of digester relief heat in various ways. At that time the advocation of such a principle received a tremendous amount of adverse criticism from sulphite men in both Canada and Germany. Tradition in the industry and the outbreak of the World War prevented at that time further development of the idea. I was, however, granted in February 1914 Canadian Patent No. 153,782 covering the basic idea of digester relief heat recovery. This principle was used privately and never advertised. Later, other investigators, working along the same line, developed slightly varied schemes for heat recovery, profiting from my experience.

W. BRUBACHER, Pulp and Paper Mill Engineer.

Pulp Testing Methods Adopted

The Pulp Testing Committee of the Technical Association of the Pulp and Paper Industry has announced that the following pulp testing methods have been adopted by letter ballot by the association:

Beater Method for Testing Pulp for Strength (Technical Association Papers, Series XIII, Revised in Technical Association Papers, Series XV).

Alpha Cellulose in Pulp (Technical Association Papers, Series XV).

Isolation of Cellulose by Chlorination Method (Technical Association Papers, Series XV).

Chlorine Consumption of Pulp (Technical Association Papers, Series XV).

West Virginia Gets Tax Rebate

WASHINGTON, D. C., October 19, 1932—The West Virginia Pulp and Paper Company has been granted a refund by the Bureau of Internal Revenue, Treasury Department amounting to $76,079.98 for the fiscal year ended October 31, 1924 as overassessment of income tax and interest.

[7] Specifications for Binders Board, Binders Board Manufacturers Association, 370 Lexington Ave., New York, N. Y.

New Types of Equipment for Testing Paper*

By F. T. Carson[1] and F. V. Worthington[2]

Abstract

This paper describes three pieces of apparatus developed at the Bureau of Standards in connection with the testing of paper. Two of them have not been previously described in the literature, while the third is an improved form of an apparatus described several years ago.

(1). A specially designed float is used in making the dry indicator test for water resistance. The float holds the specimen flat and in a definite position and has a cover-glass held by a wire clamp. Auxiliary apparatus is also described.

(2). An absorption tester consists of an inclined pipette mounted on a frame and provided with a needle valve and controls so that a very small drop of water can be reproducibly delivered onto the surface of paper in making a test for absorptiveness.

(3). An improved apparatus is described for extracting and cleaning processed papers and sheet materials. It combines the solvent action obtained with a reflux condenser with a light scrubbing of the surface and is designed to recover a sheet about 10 by 12 inches in size without the necessity of cutting or creasing it.

Apparatus for Making the Dry Indicator Test for Water Resistance

About seven years ago one of the writers proposed the dry indicator method of testing paper for water resistance

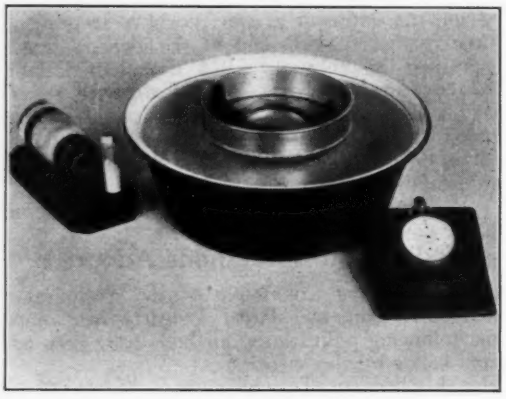

FIG. 1
Apparatus for making the dry indicator test for water resistance.

and degree of sizing.[3] The method involves sprinkling on paper some powder made of a mixture of a small amount of a water soluble dye and a much larger amount of powdered sugar, floating the paper on water, and noting the time required for the water to soak through and develop the color in the powder. Since that time the method has been used to a considerable extent and the Paper Testing Committee of the Technical Association of the Pulp and Paper Industry has had the method under consideration as an official association method. A subcommittee of this body has been studying the method, standardizing the procedure, and improving the technique. Meantime the Bureau of Standards has also sought to improve the usefulness of the method and has developed apparatus for facilitating the test. The apparatus shown in Fig. 1, consists of a float for holding the specimen in a definite position on a vessel of water, a stop watch mounted on a block provided with a lever and thumb rest for operating it, a shaker made of a small screw-top vial in the open end of which is secured a disc of 70-mesh wire screen, and a specially constructed desiccator for keeping the indicator powder dry when not in use. The desiccator is made of a wide-mouth bottle fastened on its side to a block of wood. The bottle is nearly filled with calcium chloride over which a layer of glass wool is placed. A hole large enough for the

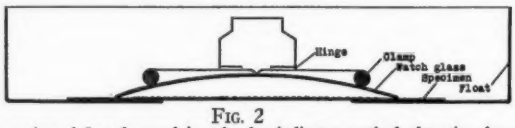

FIG. 2
Cross section of float for applying the dry indicator method of testing for water resistance.

vial to fit snugly in is bored in a stopper which fits the mouth of the bottle. At all times when the shaker is not being used to sprinkle indicator powder on the test specimen the open end is inserted through the hole in the stopper so that only dry air can communicate with the indicator powder inside.

The float is shown in cross section in Fig. 2. It is made of a thin-walled aluminum pan 5 inches in diameter and 1 inch high with a hole 2 inches in diameter cut in the bottom. The surface is coated with a thin film of paraffin to make it more water repellent. A specimen of paper about 3 inches square is centered over the hole, some indicator powder is sprinkled on the upper surface, and it is clamped between the bottom of the pan and a watch glass by means of a wire-frame clamp hinged at one side of the pan and fastened under a spring at the opposite side. The watch glass prevents premature evaporation of the transuded water, protects the indicator powder from air currents, and holds the specimen flat. The float is then placed on the surface of water at a definite temperature, being held at a slight angle with the surface of the water and the contact made so as to prevent the entrapping of air bubbles. At the instant the specimen touches the water the stop watch is started. The remainder of the test is carried out in the usual manner by noting the elapsed time until the color develops in the indicator powder. It is desirable to use a vessel to contain the water which will hold at least 2 or 3 quarts so that temperature changes will not be rapid.

Absorption Tester for Thin Semi-Bibulous Paper

Between sized paper on the one hand and blotting paper on the other there is a class of paper, typified by paper towelling, which is best tested for absorptive quality by determining the time required for a very small drop of water to be absorbed from the surface of the paper. Ordinarily a quantity of water much smaller than will drop from a pipette is required. It is very difficult without the help of special apparatus to deliver onto the surface of paper an accurately measured small volume of water and deliver it so that it will initially wet an equal area each time. In order to accomplish this the apparatus shown in

* Publication approved by the Acting Director of the Bureau of Standards of the U. S. Department of Commerce.
[1, 2] Bureau of Standards, Washington, D. C.
[3] Paper Trade Jour., *80* (1925), TS85.

Fig. 3 was devised. A pipette graduated in hundredths of a milliliter is mounted on a metal frame which is hinged to a heavy base. The pipette makes an angle of 15 or 20 degrees with the horizontal, the tip-end being bent so that the tip is about normal to the specimen. The upper end of the pipette is closed with a needle valve which is opened and closed by moving the lever, L. In making a test the apparatus is placed on the specimen of paper supported on a coarse-mesh wire screen. The tip of the inclined pipette is normally about half an inch above the surface of the paper. When the flow of water has been started so that no air remains entrapped in the tip the meniscus is brought to rest opposite some graduation and all water is wiped from the outside of the tip with a blotter or a piece of absorbent cloth. The needle valve is then opened slightly to allow the meniscus to move slowly along until the required volume is indicated, when the valve is closed. The pipette is inclined so that the water will flow out very slowly. The volume of water as indicated by the graduations moved over by the meniscus, will now hang pendent from the tip. The thumb rest, T, is then depressed causing the frame to rotate slightly about the point where it is hinged to the base. This movement brings the pendent drop of water into contact with the paper, at which instant the stop-watch is started. When the thumb rest, T, is released the tip of the pipette pulls away clean from the drop of water without distorting it and making it cover an indefinite area. When the paper has absorbed the water until it no longer shows glare by reflected light the watch is stopped and the time of absorption is recorded. By means of this device a drop of water having a predetermined volume no larger than 0.01 ml can be delivered with reasonable accuracy onto the surface of paper. A drop as small as this has been found desirable for testing some papers.

Improved Extractor and Friction Cleanser

Frequently it is necessary to extract impregnating and coating materials from processed papers, such as carbon paper, waxed paper, caselining paper, and sheathing paper, in order to recover the sheet of paper for inspection and testing. Small pieces may be so recovered by means of reflux-condenser apparatus ordinarily found in the laboratory, although some papers, such as carbon paper, are not very successfully freed of the processing materials without the aid of a certain amount of scrubbing of the surface in addition to the dissolving of the binding agent. Some years ago federal specifications for carbon paper were prepared, covering among other things the ream weight of the tissue

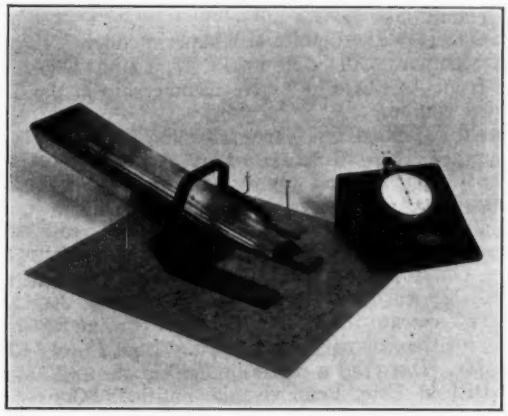

FIG. 3
Apparatus for testing the absorptiveness of paper.

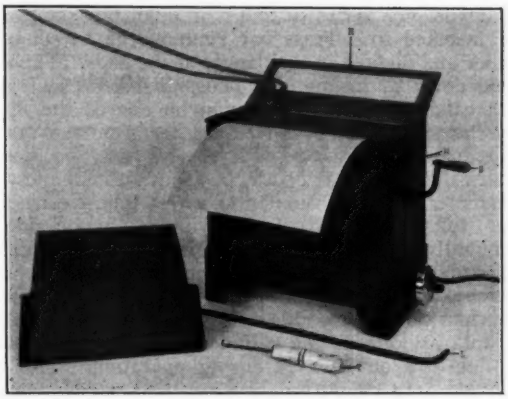

FIG. 4
Extraction and recovery apparatus for cleaning processed papers.

used in the manufacture of carbon paper. In testing bid samples and delivery samples it was of course necessary to remove the surface film of carbon and binding material in order to determine the weight of the tissue base. The method used for some time involved immersing the sheet in chloroform in an open vessel and rubbing the surface film off with pads of cotton. This method was objectionable because it was slow and wasteful and complete removal of carbon was very difficult; hence the writers devised an extractor and friction cleanser, a description of which was published several years ago.[4] This early apparatus was somewhat crude and inconvenient to operate and permitted loss of solvent; therefore, it has been redesigned and considerably improved and in this form, has been found applicable to a variety of materials.

A photograph of the new apparatus is shown in Fig. 4 and a cross section is shown in Fig. 5. In a sheet metal box, 11 inches long, 7 inches wide, and 8 or 9 inches high, is mounted a hollow cylinder, B, which is 10 inches long and about a foot in circumference. The cylinder is mounted on a shaft so that it can be rotated by means of the crank, N. The sheet of paper, I, which is to be cleaned is clamped by one edge to the cylinder. The clamp,

[4] Paper Trade Jour., *80* (1925) TS109.

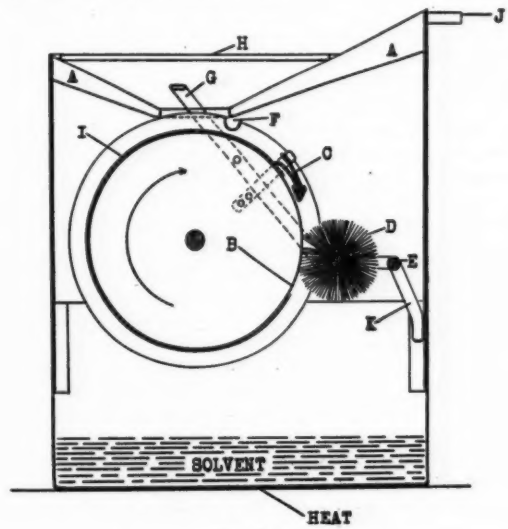

FIG. 5
Cross section of apparatus shown in Fig. 4.

C, is made of a series of loops of small phosphor-bronze wire fastened to a brass bar running the length of the cylinder and pivoted in the flanges at the ends. The clamp is held down by means of a phosphor-bronze leaf spring which catches under a projection on one of the flanges. Only the ends of the loops touch the paper so that the clamp does not interfere with the cleansing process. A cylindrical, stiff, bristle brush, D, about an inch and a half in diameter, which is similar to a test tube cleaner, only larger, runs the length of the cylinder on one side and bears lightly against it. The brush is mounted eccentrically at E so that when the cylinder is rotated in the direction of the arrow the brush rides against the cylinder. It is held in this position by the projection, K, bearing against the side wall, as long as the cylinder is turned. The brush does not turn on its axis during operation. The chief advantage of a cylindrical brush is that a new face can be turned to the cylinder when the contact face is worn. A suitable volatile solvent covers the bottom of the box to a depth of about half an inch and is vaporized by the heat from a hotplate or steam bath underneath. For carbon paper a mixture in equal parts of benzene and carbon tetrachloride has been found very satisfactory. At the top of the box are two condensers, A-A, made of thin sheet copper. Cold water enters at J and flows through the two condensers which are connected in series. The condensers are sloped toward the cylinder so that the vapors, rising from below and striking the cold surfaces, condense and the condensate runs down and drips off the edges onto the cylinder. The cylinder is accessible through a longitudinal space between the two condensers. Very little vapor can escape through this opening because it must go near the condensing surfaces to reach it. The little that does get through is confined under the hinged cover, H, and is condensed on the upper surfaces of the condensers. In Fig. 4, at the lower left hand corner, is shown an auxiliary device to be used in inserting a sheet into the apparatus. It is a flat sheet of metal to which a handle is attached. The paper is clamped on it so that one edge projects a little. This projecting edge is inserted through the opening between the condensers and under the spring clips on the cylinder where it is clamped. The condensation of vapors on the edge of the paper makes it stick to anything it touches, thus making it very difficult to put the sheet in place without some device to hold the edge stiff. After an edge is clamped to the cylinder the crank, N, is turned and the sheet of paper feeds into the apparatus and is wrapped around the cylinder. The fresh, hot solvent dripping on the surface as it passes underneath the condensers dissolves the binding agent and the brush loosens any particles of coating materials on the surface as the sheet is drawn underneath the brush. A few revolutions of the crank are usually sufficient to clean any but the most obstinate sheets. In order to remove the brush from contact with the paper the cylinder is rotated backward a little, while at the same time the lever, G, is depressed. This pushes the brush up and back out of contact. In order to get the cleaned sheet of paper out of the apparatus one then takes hold of the free end and backs it out by turning the crank backward. A hooked tool, T, is used to operate the clamp and to pick up the free end of the sheet in order to avoid touching the hot metal with the fingers. After one has finished with the apparatus the gutter, L, is inserted through a hole in the box at M, underneath the edge of the larger condenser, and is supported in slots, F, in the flanges at the ends of the cylinder. This gutter is made by cutting away half of a quarter-inch brass tube for a length equal to the length of the condenser and bending the portion which projects from the box so as to form an elbow. The condensed solvent then runs down the trough to the outside and is caught in a flask for future use. All of the working parts, together with the condenser, can be lifted out of the box as a unit so that the bottom can be readily cleaned out and freed from the accumulation of extracted materials. This is a great improvement over the old model which could not be cleaned without taking it all apart. The construction throughout is of brass, copper, and bronze.

Other Uses

For removing impregnating and coating materials the apparatus is, of course, restricted to the use of organic solvents, since aqueous solutions soften paper until the brush would quickly disintegrate it. In addition to the successful cleaning of large sheets of a variety of processed papers containing impregnating and coating materials, the apparatus has also been used for recovering the fabric base from such materials as balloon fabric and artificial leather, and has become indispensable in the testing of carbon paper for conformity to federal specifications.

New TAPPI Members

The Executive Committee of the Technical Association has pleasure in announcing the following new members:

Andrew J. Leuttgen, chemist for the P. H. Glatfelter Company, Spring Grove, Pa., is a 1924 graduate of the Technical University of Darmstadt, Germany, and was formerly employed as chemist at the York Haven, Pa., mill of the International Paper Company.

Oscar F. Neitzke, research director of Bennett, Inc., Cambridge, Mass., is a graduate of the Massachusetts Institute of Technology and received his Ph. D. degree from the University of Berlin, Germany. Doctor Neitzke was formerly a chemical engineer for the Hood Rubber Company, Watertown, Mass., and the U. S. Bureau of Mines at New Brunswick, N. J. He was also a professor at the University of Porto Rico.

George M. Pomeroy, superintendent of the Cherry River Paper Company, Richwood, W. Va., has been superintendent of the Frank Gilbert Paper Company, Waterford, N. Y.; the Reading Paper Mills, Reading, Pa.; Fraser Companies Ltd., Madawaska, Maine; Warren Parchment Company, Dexter, N. Y.; Erving Paper Mills, Erving, Mass.; and the St. Regis Paper Company, Harrisville, N. Y.

M. W. Ranke, recently color man for the Cherry River Paper Company, Richwood, W. Va., attended the Carnegie Institute of Technology. He was formerly color man at the Madawaska, Maine, mill of Fraser Companies Ltd.; the Fort Edward, N. Y., mill of the International Paper Company and at the Miquon, Pennsylvania, mill of W. C. Hamilton & Sons.

James Rogers II, sulphite mill superintendent of J. & J. Rogers Company, Au Sable Forks, N. Y., has been transferred from Associate to Active membership in the Technical Association.

Reinold T. Woodford, chemist of the Rapinwax Paper Company, St. Paul, Minn., is a 1930 graduate of the University of Minnesota and was formerly chemist at the Dunn Sulphite Paper Company, Port Huron, Michigan, and at the Waldorf Paper Products Company, St. Paul, Minn.

John S. Hart, chemist for Kenora Paper Mills Ltd., Kenora, Ontario, is a 1928 graduate of the Royal Military College. He was formerly a junior chemist at the Forest Products Laboratories of Canada, Montreal, and assistant chemist for the Powell River Company Ltd., Powell River, B. C. Mr. Hart read a paper in 1930 at the fall meeting of TAPPI at Erie, Pennsylvania, entitled, "Consistency by Light Absorption," and at the annual meeting in 1932 of the Canadian Technical Section he read a paper on "Analysis of Pulp by Selective Screening."

Section of the

COST DEPARTMENT

of the

American Paper and Pulp Association

Edited by Thomas J. Burke C. A. Director Cost Dept.

Market Analysis and Sales Control *

By Carle M. Bigelow[1]

No one will question the assertion that there has been a tremendous improvement in the effectuality of manufacturing operations during the last three or four decades. This has resulted through the development of improved machinery and improved management methods. In their last analysis, management methods are nothing but the determination of facts and the use of these facts as a foundation for management judgment. Fact-finding and utilization is the essence of Scientific Management. Careful consideration by many eminent authorities gives us the conclusion that while by no means have the manufacturing functions of business become perfect, still they have been so far advanced that there is relatively little possibility of any marked improvement in the future, without very heavy investment.

On the other hand, due to the tremendous competition for the consumer's dollar, introduced by the competition of substitution of one product for another in place of the old parallel competition where products merely competed with similar products, we find a tremendous opportunity for improvements in the distribution or sales functions of business. For example, a recent analysis made of the cost of furnishing twenty-five medium-priced homes revealed that out of every consumer's dollar spent for furnishing these homes 58c went to the cost of distribution and only 42c to the cost of production.

It is obvious to any one familiar with current business trends that vast possibilities of improvement in the distribution function are attainable. Industrial profits have been falling, in spite of decreased manufacturing costs, due to increased selling costs.

Sales Facts

However, when one approaches the sales problem, one is immediately surrounded by a vast hocus-pocus of opinion, precedent and tradition, with a marked paucity of facts. The fundamental answer to proper organization and control of the distribution function is the procurement and utilization of facts. The facts necessary for properly organizing the functions on a scientific basis are:

1—The product—its acceptability—its competition—its products.

2—The market—potential—standard—actual.

3—The economic picture—plan of total profitability—budget of selling expense.

4—Sales control—utilization of market data—measurement of effort—predetermined planning.

5—Sales compensation—providing true incentive.

6—Sales records—sales results—comparison of actual budget of sales expense—follow-up of old accounts.

All sales problems must be reduced to facts, and these facts used to prepare an economic picture. This is an economic picture of sales activities in "merchandising," or, as we prefer to define it "the consummation of sales at an adequate profit."

Adequate Profitability

At this point I would like to interject a few words as to what an adequate profit is. In the average budget, we determine what can be sold, usually by guess, and then breaking this amount down into a production program, determine that we have certain requirements for material, labor and the various types of burden, and extending sales at the expected prices we deduct our cost and burden items therefrom, and the balance is an expected profit. This is the common approach to a budgeting problem by an accountant.

The economic engineer, however, approaches the problem in an exactly reverse manner. He determines first the amount of the Capital Employed in the business. Whether it is owned or borrowed, it must make a certain economic return. Then, assuming that since money can be invested with little risk or effort and return approximately 6 per cent he states that the minimum return on Capital Employed in an industrial enterprise with all the attendant risks and effort requirements is at least twice this amount, or 12 per cent, and since we must over a long period of time balance periods when the general external economic conditions are good or bad, that in order to maintain an economic return of 12 per cent the normal profit return on Capital Employed should range between 12 per cent and 18 per cent, the latter to protect those years when it is practically impossible to attain the 12 per cent.

These figures are applicable to a business manufacturing and distributing staple commodities, with little risk of product or market substitution. On the other hand, in the manufacture and distribution of a specialty where amortization of the product itself and its market may be very high and hence involve a market risk to the stability of the business, economic profits are often set as high as from 24 per cent to 36 per cent, as an economic minimum return on the Capital Employed. Having determined what the proper economic return should be in the business, then all

* N. A. C. A. Bulletin.

[1] M. E., Pres., Bigelow, Kent, Willard & Co., Inc., Boston, Mass.

problems as to market, cost and overhead should be so adjusted that this economic profit can be attained. This is the scientific economic method of setting up a budget, rather than the academic historic accounting approach.

In other words, since a business is instituted for but one object, to make a profit, determination or standardization of profit requirements should be the first, rather than the last, consideration. In setting up such an economic program, two important subjects are:

1—To determine the volume of sales required.

2—The sales control or mechanism required for attaining this volume.

Both of these subjects are very wide. Books might be written on either of them. In order to properly limit my subject I am, therefore, going to consider market analysis largely from the forecasting phase only and sales control principally from the standpoint of the necessary fundamentals involved, and its relation to market analysis.

Forecasting Sales

We might define the "forecasting of volume of sales" as "methods of solving the following problems":

1—What can be sold;

2—How many can ultimately be sold (long range view to determine economic saturation point);

3—How many can be sold next year (short term forecasting);

4—Where can these sales be made;

5—When can these sales be made;

Opposite the first three we might write "market analysis," and after the last two "quota setting."

The forecast "what can be sold that one is equipped to manufacture" (as you all know from experience) depends upon a correlation of data obtained from a market analysis. Knowing "what to sell," the forecasting of "how many can profitably be sold ultimately" is made from the data also obtained through market analysis—and, in addition, from an economic study of the costs of manufacturing and distribution at various volumes. In other words, the economic saturation point is determined. This gives a long range view of the situation.

To forecast "how many can be sold next year"—short term forecasting—is made from a study of such statistical information reflecting outside influences on the business.

The forecasting of "where the sales can be made" results from a study of territorial potentialities as to buying power; the forecasting of "when the sales can be made" results from a study of seasonal sales variations. We usually speak of these two problems of forecasting under the subject of quota setting.

Forecasting is accomplished by employing one of two methods—the "analogy" method or the "analysis" method.

Forecasting by Analogy

In the course of our investigations, our organization has come upon numerous mathematical devices of forecasting. These devices may be multiple correlation or first differences; they may be sequences or integrals.

We have also studied numerous forecasting curves or so-called barometric indices. Some of these curves are the correlation of certain primary statistics, such as:

A—Carl Snyder's index of junk prices;

B—The composite price curves, such as the Harvard sensitive price index;

C—The three months' moving average of machine tool orders;

D—Lewis Hanley's P. V. Line, which might be termed an artificial index.

The use of mathematical devices, or forecasting curves, is only used in forecasting "how many" can be sold. Perhaps only the minimum confidence can be placed on forecasting by this method of "analogy" (i. e., the mathematical method or by the use of mechanical barometric curves), such is the complexity of variables affecting volume of sales in this heterogeneous and rapidly changing country of ours.

And it is difficult to properly interpret these curves, for when the curve shows a turning point it is by no means certain that it is a major turning point we are witnessing.

Forecasting by Analysis

We try to do our forecasting work mostly by the "analysis" method, rather than using the "analogy" method that I have just spoken of, as we are somewhat skeptical of the validity of analogy in dealing with economic phenomena.

Who could, for instance, in 1927, by any multiple correlation or by any quadrature method forecast:

A—The change from the silent movie to the all talking pictures?

B—The notable change in policy of the Federal Reserve System?

C—The death of Ford's model T and the birth of model A?

I might give you an example or two of how we have forecasted by the "analysis" method; how we have attempted to solve the problem of "what could be sold"; "how many could profitably be sold"; "where the sales could be made, and when."

Complexity of Factors

In attempting to make a forecast, many factors are encountered. Some of these relate to the distribution structure. The distribution structure is divided principally into:

1—Products for industrial consumption, sold to other manufacturers, such as sugar-making machinery, etc.

2—Products for private consumption, sold to ultimate consumers, such as automobiles, chewing gum, etc.

3—Services, such as banking, forecasting-services, etc.

There are many complex factors, other than those relating to the distribution structure noted above, that are encountered in analyzing market possibilities. One group of factors that have to be taken into consideration in determining "how much can be sold" embrace:

1—Secular Trend, or Natural Growth of Business:

The secular trend refers to the tendency toward growth or decline exhibited by many social and economic phenomena which affect business conditions. For example, population increases annually, while birth rates decrease; the volume of credit transactions moves steadily upward with increasing business activity. While the movement may be retarded over short periods of time, or even reversed, the general trend is constant in direction up or down, due to relatively persistent forces.

2—Business Cycle Changes:

Business cycle changes are recurring wave-like increases and decreases in business activity, which occur at more or less regular intervals of time, giving the economic phenomena known as prosperity and depression. For the purpose of comparison and study of cyclical movements, undistributed by other fluctuations, it is of course, necessary to eliminate the influence of both seasonal and secular fluctuations. The secular trend may be determined by measuring cyclical variations from a straight line or a curve which has been fitted to a historical series, either by inspection, by the method of semi-averages, or by establishing a regression line as is customary in statistical procedure.

Seasonal variations may be measured by the use of sim-

ple monthly means, by a twelve-month moving average, or by the use of link relatives. The corrections for secular and seasonal fluctuations then become merely an arithmetical application of the variations as determined.

3—The Lag or Lead Concept:

The period of time between changes in one time series and changes in a related series is designated as the lag of one series or lead of the other. For example, price changes may lead wage changes. In business forecasting, the discovery of leads and their measurement furnishes a basis for predicting changes months before they occur.

4—Factory Costs:

Under certain conditions, a firm may be justified in spending considerable extra money on more intense sales efforts to offset factory losses. If by increasing selling expense by $30,000 for a period, a loss of $40,000 could be eliminated from the factory, it is good business to do so.

5—Selling Expenses:

Although increasing of selling expenses may sometimes be justified, the Law of Diminishing Returns operates. In the whole country, sales may be considered as lying in various strata. The deeper we dig, the more it costs. In a certain territory, the first stratum of sales, of say $100,000, may cost 1 per cent; the next stratum of $100,000 may cost 5 per cent; the next stratum of $100,000, 20 per cent. If the product is one that is supplying an already saturated market, the only possible way to get the increased business is to take competitors' customers. This cannot long be permitted, and competitors from sheer self-preservation in holding their established trade, will meet the situation and as a result the industry in a short time will have a tremendous excess of producing capacity.

Effect of Price on Sales Volume

With many products it is a difficult problem to determine at what price the greatest profit can be earned by the manufacturers. This is especially true of new products of a novelty nature, the demand for which may soon pass. Under certain conditions, an increased volume will result from a decrease in price; under other conditions a decline in price has been accompanied by a decrease in sales; and in others, an increase in sales raised the price.

There are three prevalent price policies:

A—Selling "at the market." Cotton is a good example. A marked decrease in the price of this commodity does not increase either its sale or its use.

B—Selling "above the market." Quality goods, goods produced by a monopoly, and specialties, have peculiar qualities in that an increase in prices will frequently be accompanied by an increase in sales. (Example—Theatre tickets, lingerie, etc.)

C—Selling "under the market." A good illustration of this policy is found in the Ford Company. Ford determined what the masses of people would and could pay for the car he designed. He set the selling price at that figure, regardless of what the cost would be under the accepted methods of manufacturing; then he searched for new production methods which would get his costs down to a point where he could make a profit at the predetermined selling price.

The whole problem as it applies to any business is whether a drop in price will bring the product within the reach of people who have not previously been purchasing, or will tap a market which has been previously supplied by similar products. If a drop in price does neither of these, it results in only a temporary spurt of business, with corresponding loss of profits. Oftentimes, reaching a new stratum of buyers results in a loss of practically all the old customers.

The price of goods sold for industrial purposes (i. e., to other manufacturers) does not affect the volume so markedly as in other classes, but is increasing in its effect even in this field. When prices are low, the demand is limited, and the market well defined, a reduction in price usually will not increase sales. A good example of this is bathing suits.

The group of complex factors to be considered in determining "where the product can be sold" embrace:

1—Transportation: The railroad, the steamer, and the automobile are revolutionizing the distributive system to such an extent that domestic markets have become national. (The invention of the refrigerating system allows the whole country to have fresh oranges.)

2—Credits: The further away the consumer is from the point of production, the more difficult does this problem become.

3—Laws: Each State has certain restrictions upon commerce, adding another complicating factor to the market problem. (Legislation as to public water supply in trains, while it seems to work a hardship upon railroad companies, has the result of making business good for paper drinking cup manufacturers.)

4—Changing Demands: The wants of the public are constantly changing.

5—Location of Markets: A—In groups; B—Scattered; C—Urban; D—Rural. Markets are almost never bounded by political lines. Buying habits, trade practices, laws, transportation and other factors make this so.

6—Sectional or Territorial Preferences: The classic example is the preference for brown eggs in Boston and white eggs in New York.

7—Racial Factors: Standards of living are often established as much by racial and family training as by income. Racial groups may not buy because of racial or religious prejudice, or sometimes because of ignorance of the product and its uses.

8—Cultural Factor: Books and worthwhile pictures are examples of commodities appealing to the comparatively educated classes; chewing tobacco usually appeals to those of somewhat lower standards.

9—Climatic Conditions: This factor is evidenced in the sale of mufflers and ear tabs in New England, and not at all in certain other sections of the country.

Many of these complex factors are the result of external conditions, and the only information regarding them is to be obtained by referring to printed statistics, or by conducting a market survey by the questionnaire or interview methods. Information as to other of these complex factors is contained in the internal records of the particular business to be studied, the sales records, shipments, credit situation, etc.

There are three general methods of securing the facts regarding the external conditions for determining of markets and sales quotas:

A—Books, periodical literature, and other sources of statistical literature;

B—Questionnaire method.

If the survey is to be made quickly and economically and the factors that are to be estimated can be determined by a reference to printed "facts," then the best course in making the survey will be by utilizing all printed statistical data. If the time element is not of much importance, and plenty of money is available for the survey, then this survey based on "facts" should be augmented by a gathering together of "opinion," using either the questionnaire method or the personal interview method.

Forecasting "What Can Be Sold"

An example of forecasting what article to sell that one

is now equipped to manufacture is given at this point to illustrate the method of approach of some of the above complex factors by the analysis method. This is a report made for a firm located in one of the South Atlantic States and having a boiler shop that was idle. This firm wished to determine what product or products could be manufactured that could profitably be sold, using its present boiler shop equipment.

The general problem for solution was: what additional single commodity could be solicited that would meet the following three conditions:

A—Satisfy a growing rather than a diminishing demand;

B—Be sold, profitably, in competition;

C—Require no major changes of either: 1—Boiler shop production facilities; 2—Engineering personnel.

A study was made of various lines of work that the firm was at present equipped to bid on. Former reports on building locomotives, steel cars, transmission towers, structural steel fabrication—were reviewed. Steel-making (rolled products), the building of crusher equipment, pressure vessels, the fabrication and erection of piping—were then considered. The ratios of labor to material costs on structural steel work, tank work and pipe fabrication were analyzed. By this study we were prompted to select steel pressure vessel construction, in general, as the most desirable class of business to be solicited. It represented the type of work upon which the greater amount of overhead could be earned (i. e., the material—labor ratio is favorable).

The specific problem, then, was to forecast the sales possibilities of steel pressure vessels for the industries. Before any attempt was made to make this estimate, the following authorities were consulted:

A—Statistical bulletins relating to the various industries studied were obtained in Washington, D. C. Experts employed by the Bureau of Standards and the Fixed Nitrogen Laboratory at the American University, and officials of the Bureau of Mines, the Department of Agriculture, were all interviewed.

B—In addition to the statistical data printed by the government, an attempt was made to obtain printed information of the various commercial organizations. Letters were written and answers received from most of them. (In a great many instances lists of possible customers were obtained by this method, and information of exhibits and expositions that are held periodically at various points.)

C—The various market research agencies were investigated. Letters were sent to all magazines and trade journals catering to the chemical and allied process industrial. In every case a response was received, together with a sample copy of the magazine. In certain cases, the magazines maintain a very helpful market research department. Two of these agencies were visited.

D—Not wishing to place too much dependence on statistics for fear of using erroneous data, various consulting engineers were next visited in New York, Pittsburgh, Cleveland, and their first-hand information as to the trend of the various industries was of value.

E—Various trade directories, classified catalogs (such as the Chemical Engineering catalog) were studied to obtain lists of the competing shops and their locations.

The following steps were taken in solving the problem:

A—Study of Types of Equipment:

1—A study of the "unit processes" used in all industries revealed that many processes require digesting, storage, drying, mixing, pressure, etc., equipment of steel plate construction. (Secret processes of certain industries make it impossible for one to determine all of the unit processes used—and the resulting type of equipment.)

2—A list of the equipment used in these unit processes was prepared, together with the uses made of this equipment by the various industries.

B—Study of Market Limitations:

1—A study of the principal competing shops equipped to manufacture industrial plate equipment, particularly digesters, showed:

A—The several shops now located in the Chicago, Pittsburgh and Philadelphia districts, equipped to manufacture heavy pressure vessels in thicknesses over 1½".

B—Shops located at Atlanta, Georgia; Birmingham, Alabama; Beaumont, Texas; El Paso, Texas; Los Angeles, California; San Francisco, Calif.; Portland, Oregon; Seattle, Washington—equipped to manufacture pressure vessels up to 1½", and fabricate piping systems.

2—A comparison of the freight rates on heavy pressure vessels to similar points from (a) the company plant and (b) competitors' plants—and taking into account the location of competing shops revealed the Company had an advantage:

A—in area A, on ALL classes of industrial plate construction, and particularly pulp digesters.

B—in area B, on heavy pressure vessels, creosote retorts, cement kilns, pulp digesters.

C—in area C, on large diameter pipe line only (utilizing a portable pipe shop), but NOT digesters.

C—Study of Industries Shows Growth of Chemical Industries:

1—A study of the raw materials available in the two areas (A and B, mentioned above), and the corresponding industries showed that if the consumer is to be served most effectively, the future development of the industries must be based on a more logical relation to these newer industrial markets and to their tributary raw material resources. For this reason, the chemical and allied process industries would probably expand in the two areas A and B more rapidly than any other types of industries.

D—Trend Forecast of Industries:

1—An estimate was made of the probable *future expansion* for each industry. Not much dependence was placed on statistics for fear of being mislead by erroneous data. Rather a summation of opinions of various consulting engineers was used (where obtainable as a basis for the estimates.)

E—Selection of Pulp Industry Having Greatest Future:

In summarizing the forecasted trends, it was noted that the various industries in the areas mentioned represented cumulatively a GROWING, rather than a DIMINISHING field; that the chemical and allied process industries, as a group, showed a decided trend towards increasing.

Of this large chemical and allied process industrial group, however, the pulp industry appeared to be the most promising.

Studying the sales possibilities for pulp digesters (and reviewing the company's several past ventures and analyzing the reasons for their success—or failure) leads one to conclude that:

A—The manufacturing of pulp digesters represented an attractive line of work for:

1—Work required a sufficient amount of labor in comparison to the total cost to make it possible to earn a proportionate overhead on each job.

2—Work was "similar to boiler manufacturing" and required no major changes of either (a) boiler shop production facilities (b) engineering personnel.

B—The anticipated trends of many industries (located in territories in which the company was not handicapped

by unfavorable freight rates) was towards greater expansion, and the pulp industry was particularly favorable.

C—This expanding of the pulp industry would require additional pulp digesters.

METHOD OF FORECASTING ULTIMATE SALES (ECONOMIC SATURATION POINT):

I am now going to give you an example of how we have estimated the market's economic saturation point for a concern making women's hosiery. Statistics were available for this industry as a whole, showing the amount of goods produced. The demand for women's seamless and full-fashioned hosiery in the United States was plotted, and there was noted a growing rather than a diminishing demand. In comparison with this total demand, the "dozens sold" by the Blank Hosiery Company for the last four years has not represented any appreciable increase. From an inspection of this plotted data we could readily see:

1—That the Blank Hosiery Company was not enjoying its proportion of yearly increase of business (secular trend) as compared to the business obtained by the entire industry.

2—That this type of business fluctuated within narrow limits.

Analysis of Territories:

Figures were compiled to represent the comparative lapse of time required by each salesman employed by the Blank Hosiery Company to travel between the main trading centers in their respective territories, corrected for average automobile or train travel. There was also shown a comparative index of major customers in each territory; in some cases this index represented the number of department stores in larger cities; in other cases it represented cities of 2,500 population and over (not listing department stores). The department store figures were those for cities of over 25,000 population, taken from Part 4 of "Population and Distribution" (Fourth Edition), U. S. Department of Commerce, Bureau of Census, and from current trade directories for smaller places. Having estimated the relative distance between the trading areas in each territory, and from a count of the department stores and or cities of 2,500 population, or more, we noted that the relative possible trips per year of these various territories vary considerably.

It was noted that four territories were so large that it would not be possible for the salesmen to see his customer oftener than every four to six months. On the other hand, other territories were so laid out that salesmen could see their customer about once a month. Another view was obtained as to the allocation of territories from which was shown the relative percentage of time available for each salesman in selling, and in almost 40 per cent of the cases the salesman could only spend about half his time in selling.

Effectuality of Salesmen:

In addition to analyzing the various territories, we also analyzed the effectuality of each salesman. We tabulated the result of this analysis, including the percentage of cost of selling per salesman; of net returns to gross shipments made; the per cent of total ineffectual orders (due to ignoring credit conditions) to net sales; and the number of new permanent accounts added during the year.

From the study of the figures regarding the present territorial assignments and also of the figures of the effectuality of salesmen, one can select that territory and, conversely, that salesman representing a good average of sales volume and not handicapped by:

1—Long Trips (i. e., not seeing customer often enough).

2—Poor Credit Conditions.

3—Excessive Return of Goods.

Assuming that this average territory has been worked reasonably well, we can then work out an index of its potential buying power, as compared with the potential buying power of the whole United States. Having found this relationship, we can then determine what the total sales of the United States would be for all territories (assuming that each of the other territories is as well worked as the one we have selected.)

We have assumed that the existing layout of territories and the disposition of the salesmen have evolved as the company has developed, and have never been examined thoroughly with reference to the market as a whole, or any external standard. In determining the standard of comparison which would be external and sufficiently stable to use over a period of years, we have made a tentative evaluation or analysis by states of the potential national market for hosiery products, preliminary to a more detailed analysis by counties.

Having arrived at an index of the total potential national market (summation of states), we next, by the same method, correct the potential buying power for the particular territory we have selected as "standard". Political boundaries alone do not give a good basis for measuring the potential buying-power in certain territories. Less than half of the forty-eight states contain four-fifths of the income and two-thirds of the population. Another point which makes State figures unsatisfactory is the fact that fifty-eight main trading centers draw an appreciable amount of their retail trade from across the State line. To determine the potenial buying power of any one territory as compared with the potential buying power of the total United States requires the grouping of counties around centers for retail shopping. The main purpose of this grouping of population figures, and in some cases disregarding State lines, is to get away from the misleading intricacies of trying to handle the smaller towns by themselves, without relation to their rural dependent population. By throwing the county figures into groups about the main market town, the chief emphasis is placed on people as markets, rather than on political groups.

In estimating the total potential buying power of the United States for hosiery, we have considered two factors:

A—Willingness to buy, and

B—Ability to buy.

The "willingness to buy" is measured by the number of families in the United States. It is realized that this index does not include unmarried men and women, but from a study of the statistics one will find that the ratio of men to women in all of the states is about equal. It excludes, however, the factor of the number of children.

The influence of style and emulation and economy all seem to enter into the purchase of hosiery, so that no distinction can be made. The willingness to buy exists, therefore, directly in proportion to the population, and constitutes the more important factor of the study.

The factor of "ability to buy" was considered separately, although it is thought to have small weight in comparison to the willingness to buy. Two indices were considered in this connection; the value of production and the income tax returns, by States. Since the total value of production tends to emphasize the purchasing power of the poorer classes in greater proportion than the amount actually received, it is believed that the ability to buy in scattered areas would be over-estimated and undesirable, and this index was, therefore, rejected. Income tax returns apparently include population as an implicit weighting factor, because the total number of returns is likely to vary roughly as to the total population. In order to remove this influence, the percentages of the population of each State making income tax returns were used. These percentages

represent the potentiality of the available buyers, without giving undue consideration to the total number.

The first step in the process of computation was to list the number of families from the BUREAU OF THE CENSUS, REVISED ESTIMATES as of July, 1932. The next step was to determine the median item in the family population array. This item was expressed as 100 per cent, and all others were then expressed as percentages of the median figure. This process was used to get a quantitative relative measure without giving weight to the extreme items. In order to give this factor increased weight reflecting the "willingness to buy" as compared to the "ability to buy", these figures were weighted and another series of relative figures were obtained, which were used in combination with the "ability to buy" index. The next step in obtaining the "ability to buy" index was a duplication of the first, using percentages of population making income tax returns.

The median was found for this array, and a new set of figures was expressed as percentages of the median item, but these were not weighted as in the previous case. The weighted relative figures of families were then added to the unweighted relative figures of the percentage of population making income tax returns, and a complete index was obtained which is believed to represent relatively the quantitative potential market for men's and women's hosiery.

Having determined the total potential market, we next gave our attention to the location of main trading centers in the "average territory" selected, with the proper grouping of counties around these trading centers and certain counties in adjoining states. By a manner similar to that used in determining the total potential market of the United States, the potential buying-power of each county around these trading areas in the particular territory was determined tentatively.

The "average" territory selected was that assigned to Mr. Martin, the State of Oklahoma. The estimated buying index of this territory was approximately 1.8 per cent of the total United States. This index does not include two counties, which were assigned to trading areas in adjoining states.

Since Mr. Martin sells some $40,000 of goods in this average territory, whose estimated buying index is 1.8 per cent, the total sales in the United States should be some $2,220,000. In other words, if all territories were laid out so that the salesman would not be handicapped by long trips, etc., and each of these territories were as effectively worked as the "standard" territory selected, it is reasonable to assume that in time the sales volume can be increased to something over two million dollars.

Computation of Economic Saturation Point

Thus far, we have only considered the potentialities of our market. The next step is to determine just how much of this business we can profitably obtain. In other words, we are concerned with the problem of diminishing returns, or we might better express it as the problem of determining the vanishing point of profit.

The so-called sales costs are a summation of the administrative expenses, the manufacturing cost, and the selling expenses. The administrative expenses, such as taxes, sinking fund for depreciation, etc., do not vary as the business is increased, but are relatively fixed for all volumes of sales. On the other hand, the direct manufacturing items vary practically in direct proportion to the increase of business done, that is, the labor payrolls and the material purchases are increased as the business increases.

The selling expenses likewise increase with the amount of business done, but these expenses usually increase in a greater proportion or at a greater rate than the increase of volume of business. A chart was prepared which shows that the curves of sales volume and sales cost approach each other and finally cross at that volume where the cost of selling, manufacturing, etc., exceeds the amount of money obtained for the commodities sold. It is at this point that profits vanish. In our calculations of the economic saturation point, we must determine when we will reach this particular condition.

The United States is divided into some 180 odd territories, and each of these territories is so laid out that salesmen working any of them would call on their customers with the same relative frequency; that is, all customers would be cultivated at about the same frequency during the year. Some of these territories had a relative purchasing index of only one-third. Territories classed as "A" have a buying power index of 8.7 to 10. There are only two of these in the country. There are three in class "B", five of class "C", etc.

The estimated sales volume (per trip per salesman) naturally is some proportion of the index of territorial purchasing power already established for these various territories. The total cumulative sales or income that can be expected to be derived from all of these territories was prepared and it shows that one trip of the United States is supposed to net about $106,000 of sales.

As already stated, all territories were laid out so that each salesman could call on his customers with the same relative frequency; therefore, the total selling costs as estimated are about the same for each of the various territories.

Since the manufacturing costs, that is, labor payrolls, material purchases, etc., vary practically in direct proportion to the increase of sales volume, it was determined from the Profit and Loss Statement furnished by the Blank Hosiery Company that the manufacturing costs averaged about 80 per cent of the total sales volume. It was estimated that a loss is sustained until sales volume of some $40,000 is reached, and also that a loss is again sustained if the attempt is made to cover the entire United States. That is, when the sales volume of about $105,000 is exceeded a loss is experienced. Therefore, some thirty-four territories should not be "worked."

We have given two examples of forecasting sales by the so-called "analysis" method. We do not hold any particular brief for this method, but as stated in the beginning of our remarks, we rather favor it in lieu of the analogy method. *We have used both methods!*

In factory processes, for years, we have recognized the possibility of setting definite tasks for the accomplishment of the various operations and procedures involved. The application of science to the selling function is unquestionably in the earliest stages of development at the present time. I think it is a conservative statement to say that the standardization of selling activities is at least two or three decades behind those of manufacturing. For this reason, it seemed necessary, in order to show you a little of the deep study which is being put into the standardization of sales problems, that you be given the intimate details of the examples cited. Undoubtedly, these have seemed complicated, but I can assure you that they are relatively simple, in terms of the deep study which must be made to properly forecast many sales activities.

The reaction of many of you will naturally be that while there may be something in such methods, they are too difficult to be bothered with. I want to definitely prophesy that those concerns who do not, in the relatively near future, make every possible effort to standardize their selling activities will find themselves forced to do this sooner or later, or retire from the commercial world.

SALES CONTROL:

From the above, I hope I have demonstrated to you a little of what is being done in determining what a product should be, where it should be sold, and how much of it should be sold. Whether the market determination has been made by the analysis method such as was described above or by a cross-section interview or questionnaire method, the first foundation of proper sales control is the setting up of a process by which, through all sales interviews, market analysis information is constantly obtained, and changes in the market quickly recognized and evaluated. No market is static.

For each territory under a salesman, a continuous knowledge must be available as to what the potential market for the product is, what a good standard attainment in this market is, and the comparison of actual results with the potential and standard. Each time the salesman is routed to cover a certain number of customers or prospects, he is given a set of reports covering these points, properly made out, usually on buff paper, the duplicates on another colored paper remaining in the control file. This gradually accumulates a knowledge of the annual consumption of the product by the various customers or prospects. In actual practice, we have seen it possible to obtain over 98 per cent of the entire consumers' market written up on reports of this nature. As these are returned, they are filed in visible files and ultimately it is possible to develop the first fundamental of sales control, which we call the Coverage Report.

For each product in each territory there is shown the potential sales, and next the standard or task, often called quota, set up for the salesman, and finally his actual sales, this figured as a percentage of potential and of standard sales, respectively. To endeavor to control sales through a mere knowledge of the amount that different salesmen sell means nothing. For instance, one might say that Salesman A sells $100,000 a year, and Salesman B but $50,000 a year and that offhand Salesman A was the better salesman. On the other hand, if Salesman A is working in a territory that has potential sales of $1,000,000, with a standard set of $200,000 of sales, he is only a 50 per cent man in a territory which has a very reasonable standard set, while Salesman B may be working in a territory that has a potential of $100,000 of sales, a standard of $40,000 of sales, which makes his actual 50 per cent of potential and 125 per cent of standard. In other words, Salesman A is only 50 per cent effective against the 125 per cent effectuality of Salesman B.

This illustrates the very fundamental necessity of having a proper knowledge of market possibilities before any adequate sales control or sales compensation can be set up for salesmen. With a knowledge of what the salesman's task is, I maintain that it is a fundamental responsibility of sales management that they definitely determine and schedule salesmen as to when and where they should call. This information should be built up from the source of the continuous market analysis, and affected by the Coverage Report, particularly as to prospects and then as concerns old customers, by the maintenance of a record of sales to customer and salesmen's effort. The record of sales by customers is simple, except that it embodies the important factor of having an annual sales standard shown for each customer. On the back of this, all salesmen's calls and special mailings should be noted, and the salesmen's schedule so devised that it is possible for them to make the standard number of calls. For instance, certain customers need only be called on once every six months; others should be called on four times a month. If such considerations are left to the judgment of the salesmen, they rarely maintain the proper standard. I reiterate that it is the duty of sales control, by a proper knowledge of the market, the potential possibilities, and a thorough analysis of customer records, to definitely instruct salesmen as to when and where to call.

The mechanism for instructing salesmen as to their schedules are of two major types. In commodity selling where the clientele is definitely established, standard fixed routes can be supplied the salesman; in specialty sales or in commodity sales where there is a great number of new prospects to be developed into customers, it is usually necessary to prepare special schedules weekly, based upon the prior week's call reports received from the salesman. Properly devised, the continuous market analysis form can take the place of the call report.

Summarizing, sales control is exactly analogous to production control in a factory. A definite knowledge must be set up of what the salesman's task should be and he should be issued definite instructions, which are easily within the possibility of fulfillment to perform such definite tasks.

Sales control of this type will invariably increase sales and decrease selling expense over the old hit-and-miss method of letting the salesman use his own judgment as to when and where he will call. A powerful tool in realizing the ultimate in such a method is, of course, the proper compensation of salesmen, which presents as great possibilities in reducing selling cost as have been demonstrated by inventive payment methods in factories in reducing production costs.

In conclusion, let us consider for a moment as to why it is worth while to go to the great effort necessary to establish the selling function on a scientific basis. As a result of production economies, we have placed the great mass of people in this country upon a scale of living never before attained by any nation. We must maintain this high standard of living if we are to maintain the market for goods which is the economic foundation of prosperity. We have very nearly exhausted the possibilities of increasing prosperity through reduction of production costs. During the next two or three decades, an even greater opportunity exists for reducing the cost to consumer and increasing profits through the application of science to distribution. If we are to progress economically, it is essential that this be done. Morality, hygiene, ethics, education, all the good things of life, can only be purchased through the profits of economic prosperity. Through the application of scientific management to sales we can attain a greater prosperity in this country than we have ever realized.

New Undercut Bulletin

The Smith & Winchester Manufacturing Company, builders of the first American fourdrinier paper machines, has just issued a new bulletin covering features of its undercut trimmers. Twelve advantages exclusive to paper mill finishing rooms that use undercuts are described in detail. Specifications are outlined on its complete line of trimmers from 34 inches to 92 inches and larger. Copies may be secured without obligation by writing the Smith & Winchester Manufacturing Company, South Windham, Conn.

New Parker Embossed Blotting

Joseph Parker & Son Company, America's oldest blotting paper manufacturers whose mills have been at New Haven, Conn., since 1840, have recently sent out to the trade sample books of a new line of embossed blotting paper which they have named "Damask."

This line comes in fifteen very attractive colors and is put up in 100 sheet packages in both the 100 lb. and 120 lb. weights.

FAR COAST PAPER AND PULP MILLS ASK RELIEF

(Continued from page 13)

Discriminating Foreign Tariffs

All the leading nations of the world, except Germany and Italy, impose discriminating tariffs against American commerce.

Canada has three sets of duties, the lowest of which is imposed on the countries of the British Empire, and the highest of which is levied against American commerce. The duty on woodpulp and paper exported from this country to Canada is higher than that imposed on other nations, excepting Germany.

The export business of the pulp and paper industry of the United States, essentially because of such discrimination, has been virtually destroyed.

Foreign Competition in Domestic Market

The ratio of imports from foreign countries is steadily increasing. The ratio of consumption of domestic woodpulp and paper is steadily decreasing.

Paper is being shipped from Sweden and eastern Canada to the Pacific Coast and sold in Oregon and Washington at a price below the local cost of production, at the very doorstep of mills which are located in the great forests from which our raw product is hewn.

The depreciated currencies of those nations that have abandoned the gold standard, aided by the lower standards of living which obtain in the Scandinavian countries, has brought about unfair and unequal competition in the domestic market, nation-wide in its application, thereby undermining the entire structure of the American pulp and paper industry.

Protective Tariff

It has long been the policy of the Federal government, with few interruptions, to protect American commerce from disastrous foreign competition.

Since the Revenue Act of 1930 many countries have gone off the gold standard, their currencies have become depreciated, and tariff schedules and foreign trade are out of balance.

Other gold standard nations, France and Germany, anticipating the disadvantages to their commerce, were prompt to impose countervailing duties to protect their industries from this new danger. Canada did likewise.

The President, equally cognizant of the disadvantages to American commerce, in his message to Congress on May 11, 1932, said:

"As a matter of fact there never has been a time in the history of the United States when tariff protection was more essential to the welfare of the American people than at present. Prices have declined throughout the world, but to a far greater extent in other countries than in the United States. Manufacturers in foreign countries which have abandoned the gold standard are producing goods and paying for raw materials in depreciated currency. They may ship their goods into the United States with great detriment to the American producer and laborer because of the difference in the value of the money they pay for their raw materials and the money they receive for their finished products. Under such conditions it is imperative that the American protective policy be maintained."

The high standards of American living and the higher wage of American labor are in jeopardy. Many important industries that formerly were protected under our tariff schedules are approaching or have reached a free-trade basis. World competition in the pulp and paper industry is such that the foreign manufacturer is, in effect, receiving an export bonus as against the American manufacturer.

The pulp and paper industry of the United States, so essential to the welfare of the nation, cannot survive under such discriminating and unequal competition of foreign countries.

Revenue Act of 1930 Provides Remedy

Discriminations against the commerce of the United States are condemned by the Revenue Act of 1930. Congress has expressly charged the President with the duty of protecting our commerce against such discriminations and has given him broad powers to protect our commerce from such discrimination.

Section 338 of the Revenue Act of 1930 provides:

"The President, when he finds that the public interest will be served thereby, shall by proclamation specify and declare new or additional duties as hereinafter provided upon articles wholly or in part the growth or product of, or imported in a vessel of, any foreign country whenever he shall find as a fact that such country—

"(1) Imposes, directly or indirectly, upon the disposition in or transportation in transit through or reexportation from such country of any article wholly or in part the growth or product of the United States any unreasonable charge, exaction, regulation, or limitation which is not equally enforced upon the like articles of every foreign country; or

"(2) Discriminates in fact against the commerce of the United States, directly or indirectly, by law or administrative regulation or practice, by or in respect to any customs, tonnage, or port duty, fee, charge, exaction, classification, regulation, condition, restriction, or prohibition, in such manner as to place the commerce of the United States at a disadvantage compared with the commerce of any foreign country.

* * *

"Whenever the President shall find as a fact that any foreign country places any burden or disadvantage upon the commerce of the United States by any of the unequal impositions or discriminations aforesaid, he shall, when he finds that the public interest will be served thereby, by proclamation specify and declare such new or additional rate or rates of duty as he shall determine will offset such burden or disadvantage, not to exceed 50 per centum ad valorem or its equivalent, on any products of, or on articles imported in a vessel of, such foreign country.

* * *

"When used in this section the term 'foreign country' means any empire, country, dominion, colony or protectorate, or any subdivision or subdivisions thereof (other than the United States and its possessions), within which separate tariff rates or separate regulations of commerce are enforced."

Foreign countries of the world, by imposing discriminating tariffs, having ruined the export business of the pulp and paper industry of the United States, are now engaged in the absorption of our domestic markets, to the destruction of domestic industry, to the pauperizing of American labor, and in defiance of the national welfare.

Measure of New or Additional Duties

Because of the intricate balances of commerce, dis-

(Continued on page 46)

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING OCTOBER 15, 1932

CIGARETTE PAPER

Liggett & Myers Tobacco Co., Lafayette, Havre, 6 cs.; American Tobacco Co., Lafayette, Havre, 275 cs.

WALL PAPER

Titan Shipping Co., Amer. Farmer, London, 1 ble.; J. E. Bernard & Co., Berengaria, Southamton, 1 ble.; Irving Trust Co., Deutschland, Hamburg, 6 cs.; Davies Turner & Co., Deutschland, Hamburg, 1 cs.

PAPER HANGINGS

——, Majestic, Southampton, 1 cs.

NEWS PRINT

Chase National Bank, Kungsholm, Gothenburg, 85 bls.; Bankers Trust Co., Kungsholm, Gothenburg, 21 rolls; Jay Madden Corp., Justin, Bremen, 132 rolls; ——, Deutschland, Hamburg, 52 rolls; Perkins Goodwin & Co., Deutschland, Hamburg, 388 rolls.

WRAPPING PAPER

——, Europa, Bremen, 1 cs.; Standard Products Corp., Minnewaska, Antwerp, 7 cs.; Gevaert Co. of America, Minnewaska, Antwerp, 4 cs.; ——, Pr. Pierce, Genoa, 600 bls.

FILTER MASSE

P. H. Petry & Co., Port Said, Hamburg, 100 bls.

FILTER PAPER

H. Reeve Angel & Co. Inc., Amer. Farmer, London, 4 cs.; H. Reeve Angel & Co. Inc., Majestic Southampton, 13 cs., 9 bls.

DRAWING PAPER

H. Reeve Angel & Co. Inc., Amer. Farmer, London, 1 cs.

COLORED PAPER

E. Dietzgen & Co., St. Louis, Hamburg, 40 cs.

METAL COATED PAPER

Globe Shipping Co., Europa, Bremen, 24 cs.; Globe Shipping Co., Deutschland, Hamburg, 46 cs.; K. Pauli Co., Deutschland, Hamburg, 28 cs.

BASIC PAPER

K. H. Schmidt, Europa, Bremen, 1 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Minnewaska, Antwerp, 20 cs.

PHOTO PAPER

American Express Co., Deutschland, Hamburg, 1 cs.

COATED PAPER

Happel & McAvoy, Deutschland, Hamburg, 16 cs.

DECALCOMANIA PAPER

American Express Co., Europa, Bremen, 7 cs.; Phoenix Shipping Co., Europa, Bremen, 2 cs.; B. F. Drakenfeld & Co., Scythia, Liverpool, 30 cs., (duplex).

PARCHMENT PAPER

Wilkinson Grey & Co., Minnewaska, Antwerp, 9 bls.; F.C. Strype, Minnewaska, Antwerp, 1 cs.

TISSUE PAPER

P. J. Schweitzer, Pr. Pierce, Marseilles, 12 cs.; W. J. Byrnes, Berengaria, Southampton, 2 cs.

GUMMED PAPER

G. W. Sheldon & Co., Deutschland, Hamburg, 2 cs.

WRITING PAPER

B. Altman & Co., Berengaria, Southampton, 2 cs.; Freedman & Slater, Deutschland, Hamburg, 1 cs.

ENVELOPES

Beckhard Simfred & Co., Deutschland, Hamburg, 5 cs.

STENCIL PAPER

Frankel Carbon & Ribbon Manfg. Co., Berengaria, Southampton, 2 cs.

PASTE BOARD

Bendix Paper Co., Deutschland, Hamburg, 16 cs.

CARD BOARD

Coty Processing Co., Lafayette, Havre, 22 cs.; Dorsay Co., Lafayette, Havre, 2 cs.; Phoenix Shipping Co., St. Louis, Hamburg, 42 bls.; Coy Disbrow & Co., Black Eagle, Antwerp, 4 cs.; Gevaert Co. of America, Minnewaska, Antwerp, 17 cs.

CARD BOARD BOXES

Framerican Importing Co., Pr. Pierce, Marseilles, 5 cs.

MISCELLANEOUS PAPER

Wilkinson Grey & Co., Minnewaska, Antwerp, 152 bls.; The Borregaard Co. Inc., Kungsholm, Gothenburg, 85 rolls; Kraemer & Co., Kungsholm, Gothenburg, 132 bls.; Walker Goulard Plehn Co., Kungsholm, Gothenburg, 49 bls.; R. W. Grauert, Inc., Kungsholm, Gothenburg, 1 roll; H. Reeve Angel & Co. Inc., Kungsholm, Gothenburg, 41 rolls, 31 bls.; E. H. Sergeant & Co., Kungsholm, Gothenburg, 1 cs.; Coty Processing Co., Lafayette, Havre, 1 cs.; Keller Dorian Paper Co., Lafayette, Havre, 4 cs.; ——, Port Said Maru, Hamburg, 105 bls.; Globe Shipping Co., St. Louis, Hamburg, 892 rolls; Remington Rand Inc., Deutschland, Hamburg, 9 cs.

RAGS, BAGGING, ETC.

E. J. Keller Co. Inc., Black Eagle, ——, 56 bls. rags; Irving Trust Co., Black Eagle, Antwerp, 60 bls. bagging; Chase National Bank, Amer. Farmer, London, 14 bls. felt

waste; ——, Amer. Farmer, London, 15 bls. rags; Banco Coml Italiane Trust Co., Scanstates, Gdynia, 89 bls. rags; E. J. Keller Co. Inc., Scanstates, ——, 194 bls. rags; E. J. Keller Co. Inc., Hamburg, ——, 35 bls. rags; E. J. Keller Co. Inc., Indep. Hall, ——, 207 bls. rags; National City Bank, Justin, Bremen, 46 bls. rags.

OLD ROPE

E. J. Keller Co. Inc., Amer. Farmer, ——, 76 coils.

GLUE STOCK, ETC.

——, St. Louis, Hamburg, 50 bls. hide glue; ——, St. Louis, Hamburg, 25 bags bone glue.

WOOD PULP

J. Andersen & Co., Kungsholm, Gothenburg, 375 bls. sulphite; E. M. Sergeant & Co., Kungsholm, Gothenburg 598 bls. dry soda pulp; Johaneson Wales & Sparre, Inc., Kungsholm, Gothenburg, 160 bls. chemical pulp; Gottesman & Co. Inc., Kungsholm, Gothenburg, 1,475 bls. chemical pulp; Gottesman & Co. Inc., Gungsholm, Gothenburg, 125 bls. sulphite, Perkins Goodwin & Co., Scanstates, Gdynia, 825 bls. cellulose, 172 tons; E. J. Keller Co. Inc., Scanstates, ——, 360 bls. cellulose, 55 tons; Elof Hannson, Scanstates, Gdynia, 369 bls. cellulose, 56 tons; Lagerloef Trading Co., Scanstates, Helsingfors, 1,060 bls. sulphite, 176 tons; Lagerloef Trading Co., Scanstates, Kotka, 260 bls. mecanical pulp, 52 tons; ——, Scanstates, Kotka, 340 bls. sulphite, 57 tons; ——, Scanstates, Kotka, 130 bls. sulphate, 26 tons; Lagerloef Trading Co., Scanstates, Wiborg, 3,866 bls. sulphite, 771 tons; Lagerloef Trading Co., Scanstates, Wiborg 2,033 bls. wood pulp, 405 tons; ——, Justin, Bremen, 150 bls. wood pulp; Irving Trust Co., Justin, Bremen, 250 bls. wood pulp; Castle & Overton, Inc., Deutschland, Hamburg, 740 bls. wood pulp 148 tons.

PULPWOOD

Polarus Shipping Co., Dago Soldiers, Cove, 1,075 cords; G. S. Kerr Co., Severoles, Shippegan, 1,100 cords.

PORTLAND IMPORTS

WEEK ENDING OCTOBER 15, 1932

Gottesman & Co. Inc., Trolleholm,, Sweden, 13,010 bls. wood pulp; Gottesman & Co. Inc., Lagaholm, Sweden, 1,800 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING OCTOBER 15, 1932

T. D. Downing & Co., Black Eagle, Antwerp, 53 bls. rags; Darmstadt Scott & Courtney, Black Eagle, Antwerp, 111 bls. paper stock; D. M. Hicks, Black Eagle, Antwerp, 37 bls. flax waste; American Express Co., Black Eagle, Antwerp, 33 rolls wrapping paper; T. D. Downing & Co., Amer. Farmer, London, 89 bls. rags; 1st Natl. Bank of Boston, Amer. Farmer, London, 24 bls. waste paper; ——, Amer. Farmer, London 94 bls. new cuttings; ——, Amer. Farmer, London, 25 bls. rags; ——, Amer. Farmer, London, 31 bls. paper stock; J. B. Woodruff, Amer. Farmer, London, 82 bls. rags; G. F. Malcolm Co., Scythia, Liverpool, 34 cs. tissue paper; E. J. Keller Co. Inc., Breedyk, ——, 75 bls. rags; Gottesman & Co. Inc., Trolleholm, Sweden, 1,935 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 15, 1932

Miami Valley Importing Co., Scanstates, Gdynia, 2,849 bls. cellulose; Lagerloef Trading Co., Scanstates, Helsingfors, 260 bls. mechanical pulp, 52 tons; Jay Madden Corp., Scanstates, Helsingfors, 20 bbls. tissue paper; ——, Scanstates, Kotka, 75 rolls news print; Paper Manufacturers Co., Scanstates, Kotka, 75 rolls news print; ——, Scanstates, Kotka, 665 bls. sulphite, 133 tons; Lagerloef Trading Co., Scanstates, Kotka, 167 bls. wood pulp boards, 25 tons; Paper House of Penna., Scanstates, Kotka, 29 bls. paper; Lagerloef Trading Co., Scanstates, Kotka, 850 bls. mechanical pulp; Lagerloef Trading Co., Scanstates, Wiborg, 5,280 bls. sulphite, 975 tons; E. J. Keller Co. Inc., Wytheville, ——, 256 bls. rags.

PULP MILLS ASK RELIEF

(Continued from page 44)

criminating tariffs that deny foreign markets to the American manufacturer place the American manufacturer at a disadvantage, which is reflected in the domestic market, thereby having a significance far greater than the business of the particular market from which the American manufacturer is barred. In order to offset all the disadvantages of foreign discrimination, it is submitted therefore that the new or additional duty to be imposed should equal the discriminating charge or the rate of currency depreciation, whichever may be the greater.

Petitioners therefore pray that the President, in the interests of American industry and sound national policy, exercise the authority for such cases provided, and by presidential proclamation impose such duties on the importations of woodpulp and paper imported from such foreign countries as are discriminating against the commerce of the United States in such amounts as will equalize the disadvantage occasioned by foreign discriminations.

Respectfully submitted,
E. M. MILLS, President,
Washington Pulp and Paper Corporation,
Chairman.

Sitka Spruce Pulp and Paper Company, Empire, Oregon.
Spaulding Pulp and Paper Company, Newberg, Oregon.
Crown Willamette Paper Company, Lebanon, Oregon.
Crown Willamette Paper Company, West Linn, Oregon.
Hawley Pulp and Paper Company, Oregon City, Oregon.
St. Helens Pulp and Paper Company, St. Helens, Oregon.
Oregon Pulp and Paper Company, Salem, Ore.
Puget Sound Pulp and Timber Company, Anacortes, Wash.
Puget Sound Pulp and Timber Company, Bellingham, Wash.
Crown Willamette Paper Company, Camas, Wash.
Everett Pulp and Paper Company, Everett, Wash.
Puget Sound Pulp and Timber Company, Everett, Wash.
Grays Harbor Pulp and Paper Company, Hoquiam, Wash.
Longview Fibre Company, Longview, Wash.
Weyerhaeuser Timber Company, Longview, Wash.
Olympic Forect Products Company, Port Angeles, Wash.
Washington Pulp and Paper Corporation, Port Angeles, Wash.
National Paper Products Company, Port Townsend, Wash.
Rainier Pulp and Paper Company, Shelton, Wash.
Inland Empire Paper Company, Spokane, Wash.
St. Regis Kraft Company, Tacoma, Wash.
Shaffer Box Company, Tacoma, Wash.
Tumwater Paper Mills, Tumwater, Wash.
Columbia River Paper Mills, Vancouver, Wash.
Everett Pulp and Paper Company, West Tacoma, Wash.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 19, 1932.

Conditions in the local paper industry are gradually improving. Demand for the various standard grades of paper is more persistent than for some time past. Sales forces of the leading paper organizations are generally optimistic. The price situation is irregular at present.

The news print paper market continues unsettled and there are persistent reports around of concessions on desirable orders. According to information gathered by the News Print Service Bureau, stocks at the mills have declined slightly. At the end of September stocks at United States and Canadian mills totalled 81,157 tons, compared with 85,712 tons on August 31.

Demand for the various grades of paper board is fairly heavy. Recent advanced quotations are well maintained. The fine paper market is displaying greater strength. Tissues are going forward in good volume. The coarse paper market is steadier than of late, and kraft wrapping paper is moving at a steady pace.

Mechanical Pulp

The position of the ground wood market is practically unchanged. Offerings of both domestic and imported mechanical pulp are sufficient to take care of current requirements. Prices are generally holding to previously quoted levels and no further changes have been reported since last week.

Chemical Pulp

Some improvement was noticed in the demand for the various grades of domestic and imported chemical pulp. Shipments against contract are going forward in fairly satisfactory volume. Prices are generally steadier than in the preceding week. Imported bleached sulphite continues to be quoted at from $1.90 to $2.25, on dock, Atlantic ports.

Old Rope and Bagging

The old rope market continues quiet. Demand for both foreign and domestic old manila rope is restricted. Small mixed rope is dull. Old rope prices, however, are practically unchanged. The bagging market is fairly active. Scrap and gunny bagging are moving freely. Roofing bagging is steady. Prices remain unchanged, in most instances.

Rags

Trading in the domestic rag market is fairly brisk. Offerings of some of the grades of cotton rags are limited and prices are somewhat firmer. Roofing grades are in seasonal request. While the paper mills are showing more interest in the imported rag market, demand is still listless and quotations strictly nominal.

Waste Paper

Board mill demand for the lower grades of paper stock is well maintained. Strictly folded news and No. 1 mixed paper are going forward in good volume. Prices are steady and unchanged. The better grades of waste paper continue buoyant. Hard white and soft white shavings are holding up well. Book stock is firmer.

Twine

Sentiment in the local twine market is better and from now on to the end of the year, at least, demand for the various grades should be brisk. Supplies are beginning to move into consumption in greater volume than for some time past. Prices are holding to previously quoted levels, despite keen competition.

Southeastern Division to Meet

B. K. Steadman, secretary-treasurer of the Southeastern Division of the American Pulp and Paper Mill Superintendents Association, announces that this organization will hold a meeting, with headquarters at Ruegers Hotel, Richmond, on Friday and Saturday, November 11 and 12. All of Friday will be devoted to the reading of papers and business to come before the Association and either Saturday morning or Saturday afternoon will be devoted to golf.

The program for the meeting has not been completely arranged as yet, but it is said that it will be decidedly worth while and that at least several of the papers will be of intense interest to all paper mill men. There will also be a round table discussion of paper making problems, which discussion will be led by William Brydges, national president of the Association.

The rates at Ruegers Hotel are very reasonable and it is noted for its cuisine.

All members of the Association are urged to attend and friends also are especially invited.

Bag Filling Machine Patent Awarded

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., October 15, 1932—A patent for development of a bag filling machine has been awarded to Neil E. Dorrington and William R. Peterson, of this city, which embodies several patentable features. The invention is described as an apparatus which includes a vertically movable filling tube, a stationary casing having a discharge opening in approximate alignment horizontally with the tube and other parts. Patent rights have been assigned to the St. Regis Paper Company.

International Gets Envelope Contract

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 19, 1932—The International Envelope Corporation has been awarded the contract for furnishing the Post Office Department with 9,539,183,000 stamped envelopes and newspaper wrappers for the four year period beginning January 1, 1932, according to official announcement made at the department. The amount of the contract was $11,531,141.77. The concern is the present contractor.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 19, 1932.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is moderately active. The contract movement is fairly satisfactory. Prices are holding to previously quoted levels. Bleaching powder is selling at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is rather quiet. Domestic standard ground is still quoted at 6 cents and finely ground at 7 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—No radical changes were reported in the caustic soda market. Prices remain unchanged. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—Conditions in the china clay market are fairly satisfactory. The contract movement is seasonal. Imported china clay is still quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—The chlorine market is displaying a fairly strong undertone. Contract shipments are moving with regularity. Prices are holding to schedule. Chlorine is quoted at $1.55 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly easier. The grades of gum rosin used in the paper mills are now quoted at from $3.75 to $4.10 per 280 pounds in barrels, at works; while wood rosin is selling at $2.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Some improvement was noticed in the salt cake market. Prices are steady. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works; while imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is practically marking time at present. Prices are generally holding to schedule. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—Steadiness prevails in the starch market. Demand from the paper mills is fairly persistent. Prices remain unchanged. Special paper making starch is quoted at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Trading in the sulphate of alumina market is fairly brisk. The contract movement is seasonal. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues unchanged. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was routine. Prices are unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	4.50	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	4.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.50	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.55	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —

(Delivered New York)

News, per ton—		
Roll, contract	45.00	@ —
Rolls, spot	45.00	@ —
Sheets	50.00	@ —
Side Runs	30.00	@35.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	2.75	@ 3.00
Southern	2.62½	@ 2.75
Imported	2.75	@ 3.50
Boards—per ton—		
News	30.00	@ —
Straw	32.00	@ —
Chip	27.50	@ —
Binders' Boards	62.00	@70.00
Kraft Liner	37.50	@ —
Standard 85 Test Liner	26.50	@ —
Sgl. Mla. Lt. Chip	37.50	@ —

(F. o. b. Mill)

Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	17.00	@20.00
Dry	17.00	@20.00

(F. o. b. Mill)

No. 1 Domestic	16.00	@24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	1.90	@ 2.25
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.40	@ 1.60
Mitscherlich unbleached	1.55	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.40	@ 1.65
No. 2 Kraft	1.30	@ 1.40
Sulphate—		
Bleached	1.85	@ 2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—		
Bleached	1.75	@ 3.75
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.25	@ 2.55
Kraft (Domestic)	1.50	@ 2.75

(Delivered Paper Mills)

Soda Bleached	2.25	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White ,No. 1.	4.00	@ 4.25
New White, No. 2.	3.00	@ 3.25
Silesias No. 1	3.75	@ 4.00
New Unbleached	5.50	@ 6.00
New Soft Blacks	2.75	@ 3.00
Blue Overall	3.00	@ 3.50
Fancy	1.50	@ 1.75
Washables	1.15	@ 1.40
Mixed Khaki Cuttings	2.50	@ 3.00
Pink Corset Cuttings	2.75	@ 3.25
O. D. Khaki Cuttings	3.00	@ 3.25
Men's Corduroy	1.00	@ 1.25
New Mixed Blacks	2.25	@ 2.50

Old Rags

White, No. 1—		
Repacked	3.00	@ 3.50
Miscellaneous	2.00	@ 2.25
White, No. 2—		
Repacked	1.75	@ 2.00
Miscellaneous	1.50	@ 1.75
Thirds and Blues—		
Repacked	1.50	@ 1.75
Miscellaneous	1.00	@ 1.25
Black Stockings	2.00	@ 2.25
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.00	@ 3.25
Light Flannelettes	2.50	@ 2.75
Unbleached Cuttings	4.75	@ 5.25
New White Cuttings	4.00	@ 4.25
New Light Oxfords	3.00	@ 3.25
New Light Prints	1.85	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	3.50	@ 3.75
No. 2 White Cotton	2.75	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.80	@ 2.00
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	1.80	@ 1.90
German Blue Linens	1.70	@ 1.80
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.00	@ 1.10
Domestic	1.15	@ 1.25
Wool Tares, light	.80	@ .85
Wool Tares, heavy	.80	@ .85
Bright Bagging	.75	@ .80
Small Mixed Rope	.80	@ .90
Manila Rope—		
Foreign	1.45	@ 1.50
Domestic	1.50	@ 1.75
New Burlap Cut	1.65	@ 1.75
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
White Envelope Cuttings	1.60	@ 1.70
Ordinary Hard White No. 1	1.50	@ 1.60
Hard White No. 2	1.30	@ 1.40
Soft White No. 1	1.35	@ 1.45
Flat Stock—		
Stitchless	.55	@ .65
Overissue Mag	.55	@ .65
Solid Flat Book	.50	@ .55
Crumpled No. 1	.35	@ .40
Solid Book Ledger	1.50	@ 1.75
Ledger Stock	.45	@ .55
New B. B. Chips	.20	@ .25
Manilas—		
New Env. Cut	1.25	@ 1.35
New Cuttings	1.00	@ 1.05
Extra No. 1 old	.80	@ .90
Print	.35	@ .40
Bogus Wrapper	.30	@ .35
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	.75	@ .85
News—		
No. 1 White News	1.05	@ 1.15
Strictly Overissue	.35	@ .40
Strictly Folded	.30	@ .35
No. 1 Mixed Paper	.15	@ .20

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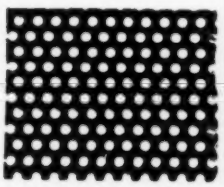

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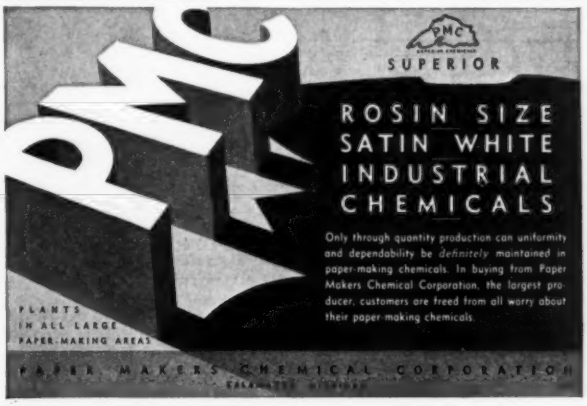
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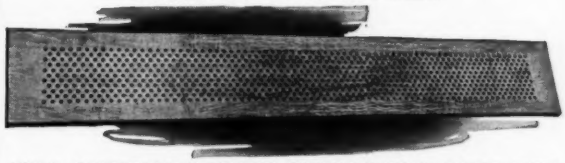

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SAMUEL M. LANGSTON CO., Camden, N. J.

Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.9¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¾
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.33¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¾	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¼
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¾	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.07	@	.07½
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	27.50	@	—
Solid News	30.00	@	—
Manila Lined Chip	37.50	@	—
Patent coated	47.50	@	—
Container Lined—			
85 Test	50 00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.45	@	.55
Solid Books	.25	@	.30
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.35
Overissue News	.30	@	.35
Old Newspapers—			
No. 1	.25	@	.30
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¼
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	46.00	@	—
Straw Board	32.00	@	—
News Board	30.00	@	—
Chip Board	30.00	@	—
Wood Pulp Board	70.00	@	80.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1 50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.03½	@	.04
New White, No. 2.	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft.	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable. No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed.	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.60	@	1.70
No. 2 Hard White	1.50	@	1.60
No. 1 Soft White	1.25	@	1.30
No. 2 Soft White	1.10	@	1.15
No. 1 Mixed	.50	@	.60
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.75	@	.80
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.10	@	1.15
No. 1 Old Manila	.75	@	.80
Print Manila	.45	@	.50
Container Manila	.40	@	.45
Old Kraft	.85	@	.90
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.30
Binders Board, Chip	.25	@	.30
Corrugated Board	.35	@	.40
Overissue News	.35	@	.40
Old Newspaper	.35	@	.40

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11¾
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings—			
Superfines	.06½	@	.20
Book, Super	.11	@	.31
Book, M. F.	.06	@	.09
Book, Coated	.05½	@	.08½
Coated Litho	.08½	@	.18
Label	.09	@	.12
Jute Manila No. 1	.09½	@	.15
Manila, Sul. No. 1	.11	@	.13
Manila, Sul. No. 2	.04¾	@	.06¾
No. 1 Kraft	.03¾	@	.04½
No. 2 Kraft	—	@	.04¾
(F. o. b. Boston)	—	@	.02¾
Southern Kraft	—	@	.02½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	44.50	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	—	@	30.00
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@	30.00
Single Manila Lined Chip	—	@	37.50
Single White, Patent Coated News Board—			
Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.50
No. 1 Old Manila	.65	@	.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.50	@	.60
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.55	@	.65
White Blank News	.95	@	1.00
Kraft No. 1	.90	@	1.00
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.27½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.80	@	.85
Manila Rope—			
Foreign	1.40	@	1.50
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixing String	—	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.60	@	1.00
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.75	@	.85
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.80	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.03¾	@	.04
New White No. 2	.02¾	@	.03¼
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.02¾
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¼
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.32½	@	.37½
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 4 M. F. (carloads)	5.25	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	2.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock.	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼